SERVICE MANUAL AG3 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-ES38M31	RM-916	Australia	SCC-P72A-A				
KV-ES38M61	RM-916	GE	SCC-P35B-A				
KV-ES38M90	RM-916	Hong Kong	SCC-P27C-A				
KV-ES38M91	RM-916	ME	SCC-P32F-A				

TRINITRON ® COLOR TV
SONY ®

SPECIFICATIONS

		Note
Power requirements	220-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	B/G, I, D/K, M	
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	
Stereo/Bilingual system	NICAM Stereo/Bilingual B/G, I, DK; A2 Stereo/Bilingual B/G	
Teletext language	English, Arabic, French	KV-ES38M90 only
Channel coverage		
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
	VHF: 0 to 12, 5A, 9A / UHF: 28 to 69 / CATV: S01 to S03, S1 to S41	Australia only
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: S01 to S03, S1 to S41, Z1 to Z39	
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	
⊓ **(Antenna)**	75-ohm external terminal	
Audio output (Speaker)	15W + 15W	
Number of terminal		
⊙ **(Video)**	Input: 4* Output: 1	Phono jacks; 1 V$_{P-P}$, 75 ohms
♪ **(Audio)**	Input: 4* Output: 1	Phono jacks; 500 mVrms
⊡ **(S Video)**	Input: 2	Y : 1 Vp-p, 75 ohms, unbalanced, sync negative C : 0.286 Vp-p, 75 ohms
⊡ **(Component Video)**	Input: 1	Phono jacks Y : 1 Vp-p, 75 ohms, sync negative C$_B$: 0.7 Vp-p, 75 ohms C$_R$: 0.7 Vp-p, 75 ohms Audio : 500 mVrms
DIGITAL IN	Input: 1	Phone jack; 0.5 Vp-p, 75 ohms
⌒ **(Headphones)**	Output: 1	Stereo minijack
Picture tube	38 inch	
Tube size (cm)	97	Measured diagonally
Screen size (cm)	91	Measured diagonally
Dimension (w/h/d, mm)	962 x 728 x 615	
Mass (kg)	112	

Design and specifications are subject to change without notice.

TABLE OF CONTENTS

SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.

The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

When an errors occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

Result for all of the following diagnostic items are displayed on screen. No error has occured if the screen displays a "0".

Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/ Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F1601 (F1 Board)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP)	2 times	002:000 or 002:001~255	• H.OUT Q6807 is shorted. • H.LIM Q6810 is shorted.	• Power does not come on. • Load on power line is shorted.
• +B overvoltage (OVP)	3 times	003:000 or 003:001~255	• PH 6602 faulty. • 10.5V is not supplied. (D board)	• Power does not come on.

• Vertical deflection failure	4 times	004:000 or 004:001~255	• V.OUT IC6800 faulty
			   D6816 faulty
			   D6817 faulty
			   D6824 faulty
			   R6852 open
			   R6851 open
				• Vertical deflection pulse is stopped.
				 • Vertical size is too small.
				 • Vertical deflection stopped.

• White balance failure (no PICTURE)	5 times	005:000 or 005:001~255	• G2 is improperly adjusted. (Note 2) • CRT problem. • Video OUT IC9001, 9002, 9003 are faulty. (C board) • IC8306 (J board) and IC4301 (E board) are faulty. • No connection E board to C board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Horizontal deflection failure	6 times	006:000 or 006:001~225	• C6831 is open circuit. • CN6101 (D1 board) is disconnected.	• H pulse output is too high.
• Audio Protection	7 times	007:000 or 007:001~225	• Power supply fails. • IC1203, IC1204 faulty	• There is picture but speaker does not release sound.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

Note 1: Refer to screen (G2) Adjustment in section 4-5 of this manual.

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT
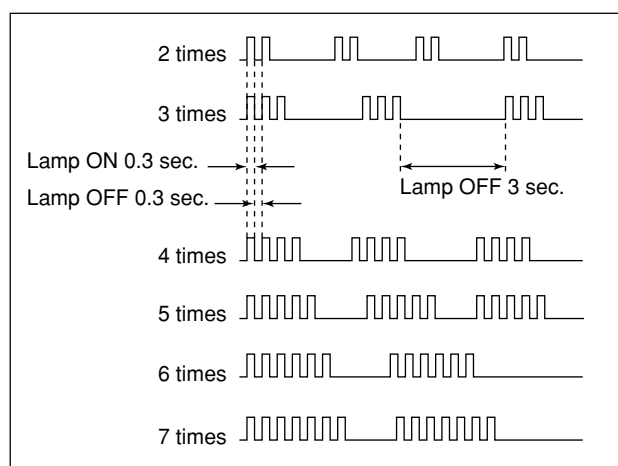
Diagnostic Item	Flash Count*
+B overcurrent	2 times
+B overvoltage	3 times
V deflection stop	4 times
White balance failure	5 times
High voltage protector	6 times
Audio Protection	7 times

* One flash count is not used for self-diagnostic.

STANDBY/SLEEP lamp
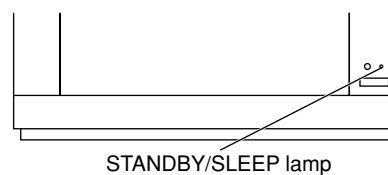
3. STOPPING THE STANDBY/TIMER FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

4. SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as "power sometimes shuts off" or "screen sometimes goes out" that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

[To Bring Up Screen Test]
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Screen display ➡ channel 5 ➡ Sound volume - ➡ Power ON
⇧
Note that this differs from entering the service mode (mode volume +).

Self-Diagnosis screen display

```
SELF DIAGNOSTIC

002 : 000  ◄──────── Numeral "0" means that no fault has been detected.
003 : 000
004 : 000
005 : 001  ◄──────── Numeral "1" means a fault has been detected.
006 : 002  ◄──────── Numeral "2" means two faults have been detected.
007 : 000

101 : 000
```

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to "0".

Unless the result display is cleared to "0", the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to "0", press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel 8 ➡ 0

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

6. SELF-DIAGNOSTIC CIRCUIT
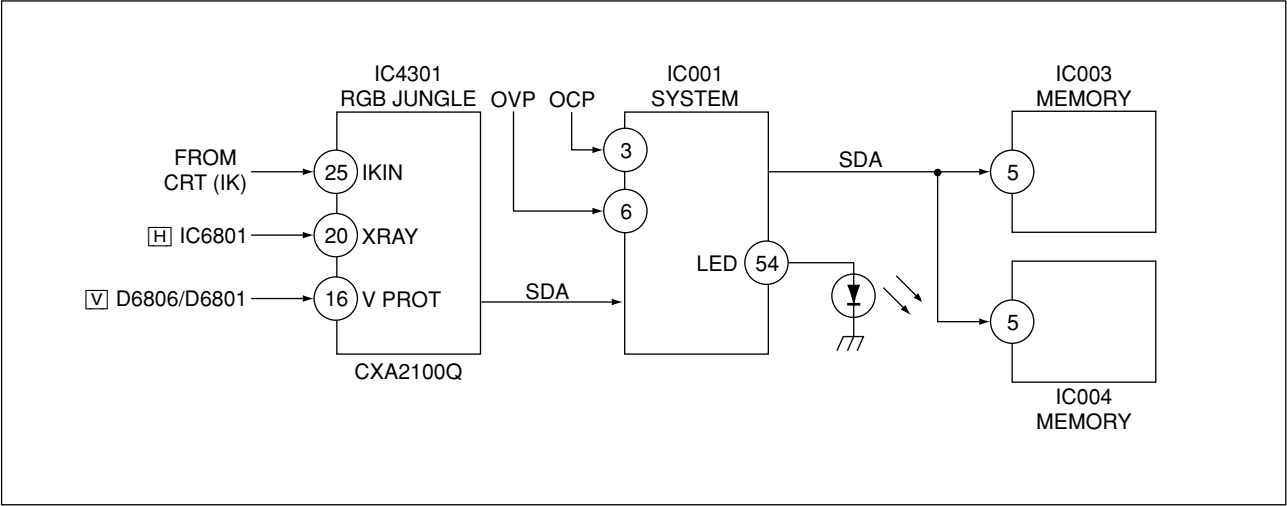
+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135) line is detected by Q6610 and Q6609. If Q6610 and Q6609 go to ON, the voltage to the pin3 of IC001 go to UP. The unit will automatically turn off.
+B overvoltage (OVP)	Occurs when an overvoltage on the +B(135) line is detected by D6635, Q6611 and Q6612. If Q6611 and Q6612 go to ON, the voltage to pin6 of IC001 go to UP. The unit will automatically turn off.
Vertical deflection failure	Occurs when an absence of the vertical deflection pulse is detected by Q6811, Q6819, Q6820, Q6821 and D6801. Shut down the power supply.
White balance failure	If the RGB levels do not balance or become low level within 5 seconds. This error will be detected by IC4301. TV will stay on, but there will be no picture.
High voltage protector of Horizontal Deflection	Occurs when an overvoltage of horizontal pulse is detected by D6809 and IC6801. If the voltage of 7 pin of IC6801 goes to High, the voltage to pin20 of IC4301 go to UP. The unit will automatically turn off.
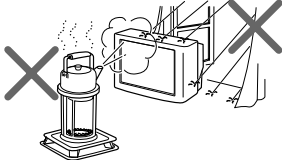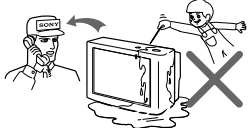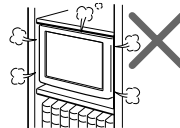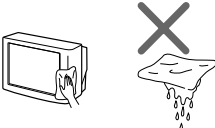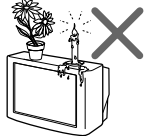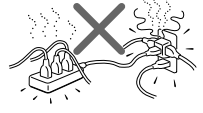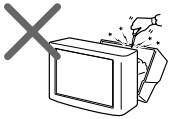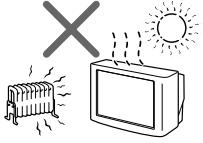
The operating instruction mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

SECTION 1
GENERAL

WARNING

- Dangerously high voltages are present inside the TV.
- TV operating voltage: 220-240 V AC.

For your own safety, do not touch any part of the TV, the power cord and the antenna cable during lightning storms.	For children's safety, do not leave children alone with the TV. Do not allow children to climb onto it.
To prevent fire or shock hazard, do not expose the TV to rain or moisture.	Do not operate the TV if any liquid or solid object falls into it. Have it checked immediately by qualified personnel only.
Do not block the ventilation openings of the TV. Do not install the TV in a confined space, such as a bookcase or built-in cabinet.	Clean the TV with a dry and soft cloth. Do not use benzine, thinner, or any other chemicals to clean the TV. Do not scratch the picture tube.
Do not place any objects on the TV.	Do not plug in too many appliances to the same power socket. Do not damage the power cord.
Do not open the cabinet and the rear cover of the TV as high voltages and other hazards are present inside the TV. Refer servicing and disposal of the TV to qualified personnel.	Your TV is recommended for home use only. Do not use the TV in any vehicle or where it may be subject to excessive dust, heat, moisture or vibrations.

WARNING (continued)

Install the TV using the recommended TV stand (SU-ES38G) or its equivalent. Ensure that the TV stand and floor surface is stable and can support the TV set weight (112kg).	Pull the power cord out by the plug. Do not pull the power cord itself. Even if your TV is turned off, it is still connected to the AC power source (mains) as long as the power cord is plugged in. Unplug the TV before moving it or if you are not going to use it for several days.

Getting Started

CAUTION
- Do not plug in the power cord until you have completed making all other connections; otherwise a minimum leakage current might flow through the antenna and other terminals to ground.
- To avoid battery leakage and damage to the remote, remove the batteries from the remote if you are not going to use it for several days. If any liquid that leaks from the batteries touches you, immediately wash it away with water.

Step 1

Connect the antenna

If you wish to connect a VCR, see the **Connecting a VCR** diagram below.

Rear of TV
Antenna cable (not supplied)
or
IEC connector (not supplied)
Antenna cable (not supplied)
⟹ : Signal flow
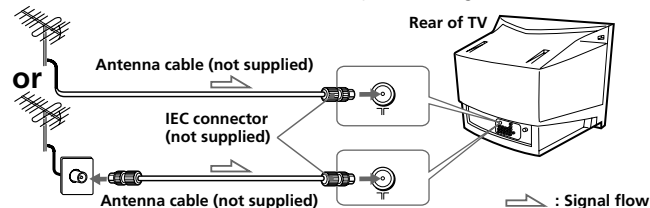
Note
- If the input signal to the 冂 (antenna) terminal is very weak, the picture may automatically become dimmed and "NO SIGNAL" will appear on the screen. This does not indicate a malfunction.

Connecting a VCR

To watch the video input, press ⤵ (see page 11).

Antenna cable (not supplied)
To 冂 (antenna)
Rear of TV
To antenna output
VCR
To ⤵ (S video input)
S video cable (not supplied)
AUDIO VIDEO
VIDEO IN
R L
VIDEO OUT
To S video output
Y
C_B
C_R
L (MONO)
R
L DIGITAL IN (DOLBY DIGITAL/PCM) R
To video and audio outputs
Audio/Video cable (not supplied)
To ⤵ 1, 2 or 3 (video input)
(yellow)
♪-L (MONO) (white)
♪-R (red) ⟹ : Signal flow
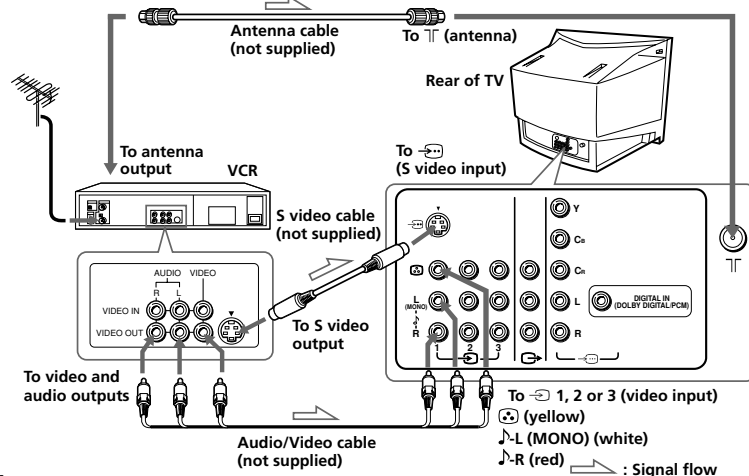
Notes
- If you connect a monaural VCR, connect the yellow plug to (the yellow jack) and the black plug to ♪ -L (MONO) (the white jack).
- If you connect a VCR to the 冂 (antenna) terminal, preset the signal output from the VCR to the program number 0 on the TV.
- When both the ⤵ (S video input) and ⤵ 1 (video input) are connected, the ⤵ (S video input) is automatically selected. To view the video input to ⤵ 1 (video input), disconnect the S video cable.
- When no signal is input from the connected video equipment, the TV screen becomes blue.

Step 2

Insert the batteries into the remote

Notes
- Do not use old batteries or different types of batteries together.
- To operate some of the functions of your TV, you may have to open the remote control cover.
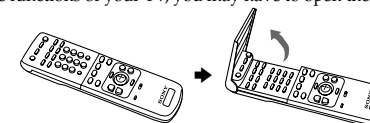
Step 3

Preset the channels automatically

Side panel

1

2 AUTO PROGR

⤷ AUTO PROGRAM
PR : 01
TV SYS : AUTO
VHF LOW
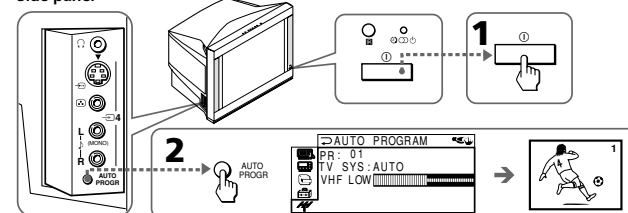
Tips
- To stop the automatic channel presetting, press MENU twice.
- If your TV has preset an unwanted channel or cannot preset a particular channel, then preset your TV manually (see page 42).
- To open the side panel of your TV, push on it until you hear a click, then it will open.

PUSH PUSH
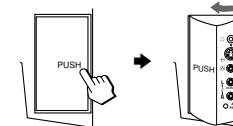
Connecting optional components

You can connect optional audio/video components, such as a VCR, multi disc player, camcorder, video game, or stereo system. To watch and operate the connected equipment, see pages 11 and 26.

Connecting a camcorder/video game equipment using the ⊖ (video input) jacks

Video game equipment

Side panel

To ⊶
(S video input)

To S video output

or

Camcorder

S video cable
(not supplied)

Audio/Video cable
(not supplied)

To video and
audio outputs

To ⊖ 4
(video input)

: Signal flow
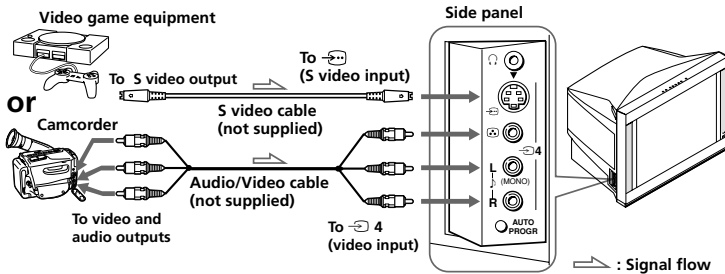
Notes
- When connecting video game equipment, display the "FEATURE" menu and select "ON" for "GAME MODE" to adjust the picture setting that is suitable for video games (see page 37).
- You can also connect video equipment to the ⊖ 1, 2, or 3 (video input) jacks at the rear of your TV.
- When both the ⊶ (S video input) and ⊖ 4 (video input) are connected, the ⊶ (S video input) is automatically selected. To view the video input to ⊖ 4 (video input), disconnect the S video cable.

Connecting audio/video equipment using the ⊳ (monitor output) jacks

Antenna cable (not supplied)

Rear of TV

To
antenna
output   **VCR**

Audio system

or

To video and
audio inputs

To
audio
inputs

⊡ (yellow)
♪-L (MONO)
(white)

♪-R (red)

To ⊳
(monitor output)

Audio cable
(not supplied)

Audio/Video cable (not supplied)

: Signal flow
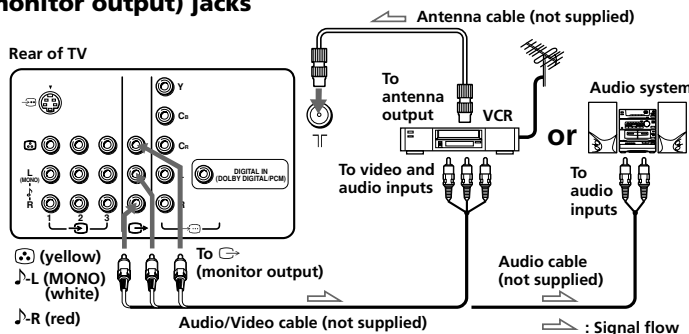
Note
- If you select "DVD" on your TV screen, no signal will be output at the ⊳ (monitor output) jacks (see page 11).

Connecting a DVD player to ⊷ (component video input)

1 Using an audio cable, connect R and L under ⊷ (component video input) on your TV to the LINE OUT, AUDIO R and L output connectors on your DVD player.
2 Using a coaxial digital connecting cord, connect DIGITAL IN under ⊷ (component video input) on your TV to the DIGITAL OUT, COAXIAL output connector on your DVD player.
3 Using a component video cable, connect Y, C_B, and C_R under ⊷ (component video input) on your TV to the COMPONENT VIDEO OUT Y, C_B, and C_R output connectors on your DVD player.
4 Press ⊖ on the remote or the TV until "DVD" appears on the screen.

Component video cable
(not supplied)

To ⊷
(component video input)

To component
video output

To audio
output

Audio cable (not supplied)

To coaxial
digital
output

C_R C_B Y   R-AUDIO-L   VIDEO   OPTICAL   COAXIAL

COMPONENT VIDEO OUT   S VIDEO OUT   LINE OUT   DIGITAL OUT

Y
C_B
C_R
L
R

DIGITAL IN
(DOLBY DIGITAL-PCM)

To L (white)
R (red)

To DIGITAL IN
(digital input)

: Signal flow

DVD player

Coaxial digital
connecting
cord (not
supplied)

Notes
- If your DVD player can output interlace and progressive mode signals, select the interlace output when connecting to ⊷ (component video input) on your TV. Your TV can receive either 525i/60Hz or 625i/50Hz interlace signals.
- Some DVD player terminals may be labeled differently:

Connect	To (on the DVD player)
Y (green)	Y
C_B (blue)	C_B, B-Y or P_B
C_R (red)	C_R, R-Y or P_R

- When connecting to ⊷ (component video input) on your TV, you must connect Y, C_B, and C_R to receive the video signals, and at least connect DIGITAL IN to receive digital audio signals or connect L and R to receive analog audio signals (see page 33).

continued

– 6 –

Connecting optional components (continued)

Note
• When making connections to DIGITAL IN under ⟟ (component video input) on your TV, always set "DIGITAL IN: OFF" in the "A/V CONTROL" menu. After completing all connections, then set "DIGITAL IN: ON". If you set "DIGITAL IN: ON" while still making connections to ⟟ DIGITAL IN (component video input), a loud noise may suddenly come out from the speakers, affecting your hearing and causing damage to the speakers (see page 33).

Connecting a DVD player to ⟞ (video input)

Connect ⟞ 1, 2, or 3 (video input) ♪/⟟ (audio/video) connectors on your TV to LINE OUT on your DVD player.

To audio/video output

To ⟞ 1, 2, or 3 (video input)

Audio/Video cable (not supplied)

R-AUDIO-L VIDEO

LINE OUT

DVD player

DVD player

⟟ (yellow)
♪-L (MONO) (white)
♪-R (red)

⟿ : Signal flow
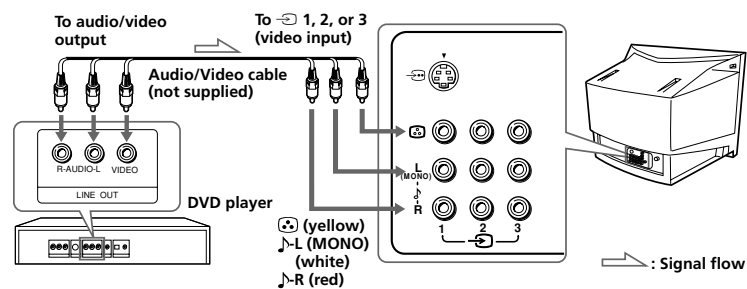
Notes
• Since the high quality pictures on a DVD disc contain a lot of information, picture noise may appear. In this case, adjust the sharpness ("SHARP") under "PERSONAL ADJUST" in the "PICTURE MODE" menu (see page 32).
• Connect your DVD player directly to your TV. Connecting the DVD player through other video equipment will cause unwanted picture noise.

— 10 —

Securing the TV

To prevent the TV from falling, secure the TV using one of the following methods:

A With the supplied screws, attach the stabilizer band to the TV stand and to the rear of the TV using the provided hole.

OR

B Put the cord or chain through the clamps to secure the TV against a wall or pillar.

20 mm

3.8 mm

A

OR

B
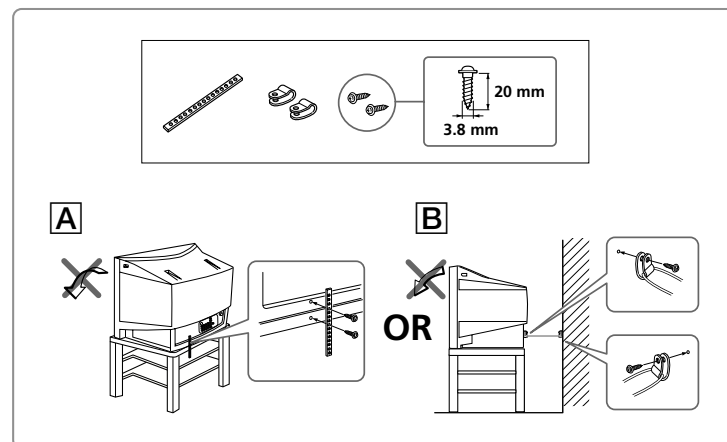
Note
• Use only the supplied screws. Use of other screws may damage the TV.

Watching the TV

This section explains various functions and operations used while watching the TV. Most operations can be done using the remote.

⏻ indicator

Number buttons
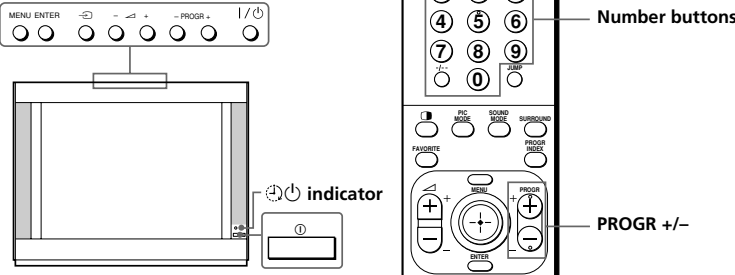
PROGR +/−

1 Press ① to turn on the TV.

When the TV is in standby mode (the ⏻ indicator on the TV is lit red), press **l/**⏻ on the remote or on the TV.

2 Press PROGR +/− or the number buttons to select the program number.

For double digit numbers, press -/--, then the number (e.g., for 25, press -/--, then 2 and 5).

or
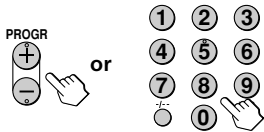
Note
• When you turn on the TV, either the program number or video input is displayed for approximately 40 seconds. The ECO MODE (🍃ECO) icon will also appear if "ECO MODE" in the "FEATURE" menu is set "ON" (see page 37).

To select a program number quickly

(1) Press and hold PROGR +/−.
(2) Release PROGR +/− when the desired program number appears.

Note
• When you select a program number quickly, the picture may be disrupted. This does not indicate a malfunction.

⏻ indicator

JUMP

MENU

ENTER

∠ +/−
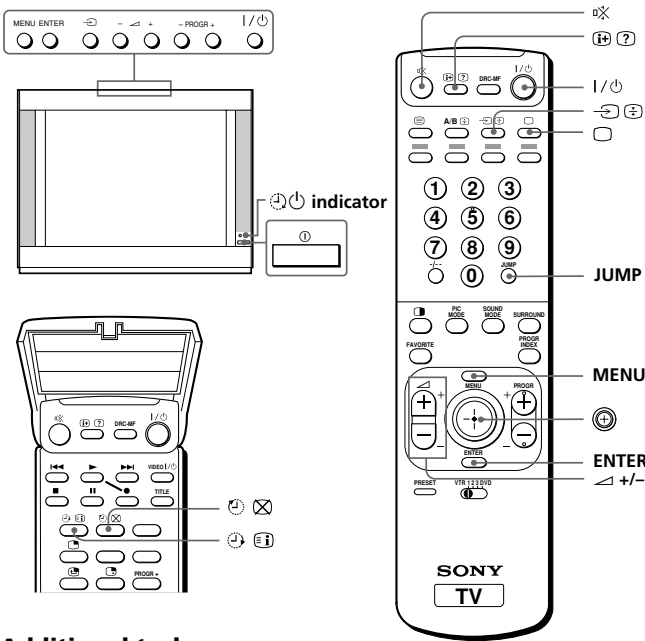
Additional tasks

To	Press
Turn off temporarily	**l/**⏻. The ⏻ indicator on the TV lights up red.
Turn off completely	① on the TV.
Adjust the volume	∠+/−.
Mute the sound	ⓧ.
Watch the video input (VCR, camcorder, etc.)	⤷ (or ⤷ on the TV) to select "VIDEO 1", "VIDEO 2", "VIDEO 3", "VIDEO 4"or "DVD". To return to the TV screen, press ▢ (or ⤷ on the TV).
Jump back to the previous program number	JUMP.
Display the on-screen information*	ⓘ+.

* Some picture/sound settings, and either the program number or video input are displayed. The on-screen display for the picture/sound settings disappears after about three seconds.

Watching the TV (continued)

Using the Remote Control Button Joystick (◎)

You can select the menu item on the screen by moving ◎ up, down, left or right (see page 30).

To confirm a selected item, press ◎. You can also press ENTER on the remote to confirm a selected item.

To move

To confirm
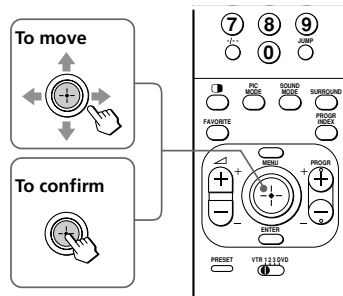
Changing the menu language

You can change the menu language as well as the on-screen language. For details on how to use the menu, see **Introducing the menu system** on page 28.

1 Press MENU.

```
⊃ A/V  CONTROL
DRC-MF : DRC1250
PICTURE MODE : DYNAMIC
SOUND MODE : DYNAMIC
SURROUND : OFF
DIGITAL IN : OFF
```

2 Move ◎ up or down to select the "SETUP" icon (🗄), then press ◎.

```
⊃ SET  UP
LANGUAGE : ENGLISH
CHILD LOCK : PR01  OFF
PIC ROTATION
FAVORITE  CH
INTELLIGENT  VOL : OFF
```
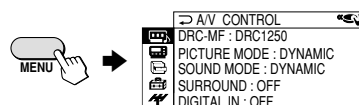
3 Make sure "LANGUAGE" is selected, then press ◎.

```
⊃ SET  UP
LANGUAGE :       ENGLISH
CHILD  LOCK : P   中文
PIC  ROTATION    عربي
FAVORITE  CH
INTELLIGENT  V
```

4 Move ◎ up or down to select the desired language (e.g., " عربي "), then press ◎.

The selected menu language appears.

```
⊃ تجهيز
اللغة / LANGUAGE :       عربي
قفل  للاطفال : PR01      غلق
دوران  الصورة
قنوات  مفضلة
الصوت  الذكي :           غلق
```
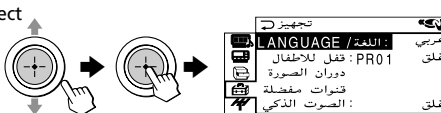
To return to the normal screen

Press MENU.

Setting the Wake Up timer

1 Press 🕘 until the desired period of time appears.

The Wake Up timer starts immediately after you have set it.

WAKE UP TIMER:10M
After 10 minutes

WAKE UP TIMER:OFF ← **WAKE UP TIMER:12H00M**
No Wake Up Timer   **After 12 hours**
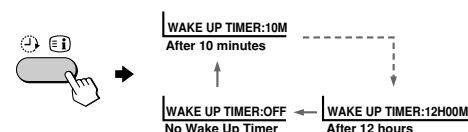
2 Select the program number or video input you want to wake up to.

3 Press I/⏻, or set the Sleep timer if you want the TV to turn off automatically.

The 🕘 indicator on the TV lights up orange.

To cancel the Wake Up timer

Press 🕘 until "WAKE UP TIMER: OFF" appears, or turn off the TV's main power.

Note
• If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up timer, the TV automatically goes into standby mode. To resume watching the TV, press any button or control on the TV or the remote.

Setting the Sleep timer

Press 🕘 until the desired period of time appears.

The Sleep timer starts immediately after you have set it.

SLEEP TIMER:30M → **SLEEP TIMER:60M**
After 30 minutes   **After 60 minutes**

SLEEP TIMER:OFF ← **SLEEP TIMER:90M**
No Sleep Timer   **After 90 minutes**
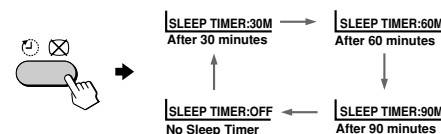
To cancel the Sleep timer

Press 🕘 until "SLEEP TIMER: OFF" appears, or turn the TV off.

Selecting the picture and sound modes

You can select picture and sound modes and adjust the setting to your preference in the "PERSONAL" option.

SOUND MODE
PIC MODE
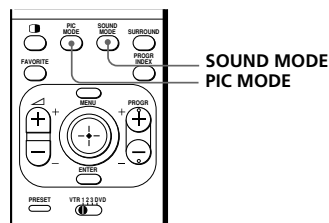
Selecting the picture mode

Press PIC MODE repeatedly until the desired picture mode is selected.

PIC MODE

DYNAMIC → STANDARD
↑   ↓
PERSONAL ← HI-FINE
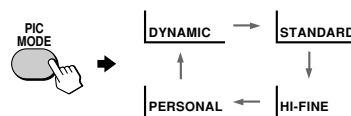
Select	To
"DYNAMIC"	view high contrast pictures.
"STANDARD"	view normal pictures.
"HI-FINE"	view higher density pictures with mild contrast.
"PERSONAL"	receive the last adjusted picture setting from the "ADJUST" option in the "A/V CONTROL" menu (see page 32).

Selecting the sound mode

Press SOUND MODE repeatedly until the desired sound mode is selected.

SOUND MODE

♪DYNAMIC → ♪DRAMA
↑   ↓
♪PERSONAL ← ♪SOFT
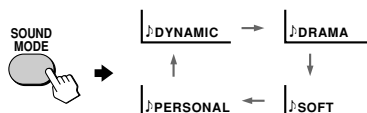
Select	To
"DYNAMIC"	listen to dynamic and clear sound that emphasizes both the low and high tones.
"DRAMA"	listen to sound that emphasizes voice and high tones.
"SOFT"	listen to soft sound.
"PERSONAL"	receive the last adjusted sound setting from the "ADJUST" option in the "A/V CONTROL" menu (see page 32).

Tip
• You can also set the picture and sound modes using the menu (see **Changing the "A/V CONTROL" setting** on page 31).

Viewing higher quality pictures
— "DRC-MF"

DRC-MF

The Digital Reality Creation-Multi Function (DRC-MF) feature allows you to enjoy higher quality pictures on your TV. You can select "DRC1250" to view super real (higher density) pictures, "DRC100" to reduce flicker, or "DRC PROGRESSIVE" to reduce any jittering on the screen if necessary.
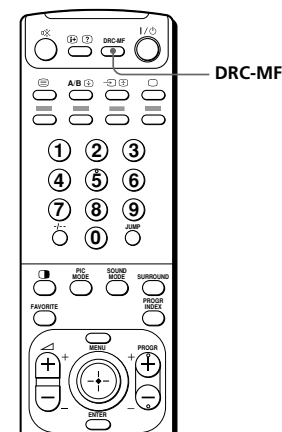
Press DRC-MF repeatedly until you receive the desired picture quality.

DRC-MF

DRC-MF: DRC1250 → DRC-MF: DRC100
↑   ↓
DRC-MF: DRC PROGRESSIVE ←
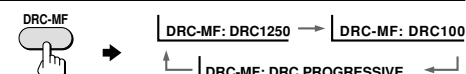
Select	To
"DRC1250"	view higher density pictures.
"DRC100"	reduce flicker on the screen.
"DRC PROGRESSIVE"	reduce jitter of any small areas or scanning lines (e.g., letters or the edge of objects) on the screen.

Tips
• You can also select the DRC-MF option using the menu (see **Changing the "A/V CONTROL" setting** on page 31).
• When the broadcast signal is weak, you may see some dots or noise on the TV screen. To reduce this interference, display the "A/V CONTROL" menu and select "ADJUST" in "PICTURE MODE", then adjust "SHARP" to reduce the sharpness (see page 32).

Note
• The DRC-MF mode is not selectable when using the "PROGRAM INDEX" or "FAVORITE CH" feature, or when the "GAME MODE", Picture-In-Picture ("PIP"), or "TWIN" mode is turned "ON".

The DRC-MF logo (DRC-MF) and "DRC-MF" are trademarks of

Sony Corporation.

Viewing your favorite channels
— "FAVORITE CH"

You can display seven favorite channels for quick and easy selection.

The last seven channels selected with the number buttons are displayed in "AUTO" mode. You can set up your own favorite channels in "MANUAL" mode under the "FAVORITE CH" menu (see **Programming the favorite channels setting** on page 40).

FAVORITE

ENTER
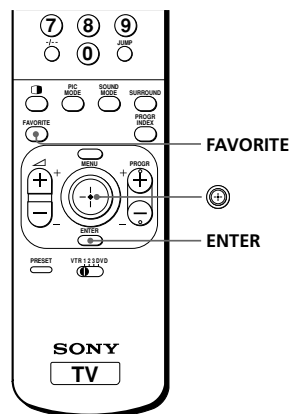
Selecting a favorite channel

1 Press FAVORITE.

FAVORITE

FAVORITE CH
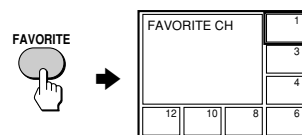
2 Move ⊕ up, down, left or right to select the desired channel (e.g. PR 8), then press ⊕.

FAVORITE CH

3 Press ⊕ again.

8
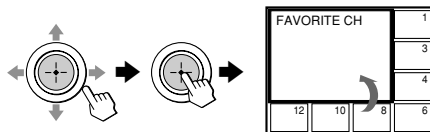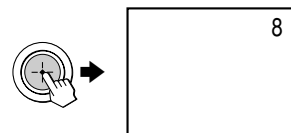
Note
• When you use your TV for the first time, seven preset channels appear.

Watching two programs at the same time
— "PIP", "TWIN"

With the Picture-in-Picture (PIP) or TWIN pictures features, you can display a different program number or video input within or beside the main picture.

/ PROGR +/PROGR –
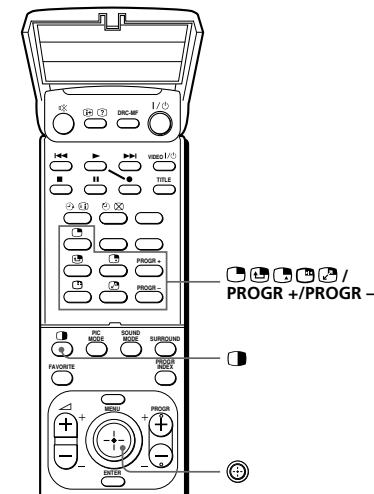
Displaying the PIP screen

Press 🔲.

12
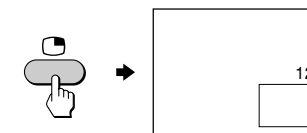
Displaying TWIN pictures

Press 🔲.

♪ 10   12
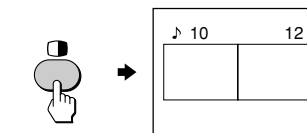
To return to the normal screen

Press 🔲 (when displaying the PIP screen) or 🔲 (when displaying the TWIN picture screen).

Tip
• You can also display the PIP screen or TWIN pictures and operate some of its functions using the menu (see **Changing the "MULTI PICTURE" setting** on page 34).

Watching two programs at the same time (continued)

Additional PIP/TWIN pictures tasks

To	Press/Move
change the program number in the PIP screen or in the right TWIN picture	Press PROGR + or PROGR –.
select a video input in the PIP screen or in the right TWIN picture	Press ⬚.
swap pictures between the main and PIP screens	Press ⬚.
freeze the PIP screen	Press ⬚. To unfreeze the screen, press the button again.
change the position of the PIP screen	Press ⬚.
swap the right and left pictures of the TWIN pictures	Press ⬚.
change the screen size of the TWIN pictures	Move ◉ left to increase the left screen size. Move ◉ right to increase the right screen size.

Notes
- The ⬚ button does not function in the TWIN pictures mode.
- When you display a video input on the PIP screen at a faster/slower speed, the picture may be disrupted depending on the VCR type.
- If you display different color systems on the main screen and the PIP screen, the size of the PIP screen may be different and the PIP picture may be disrupted. This does not indicate a malfunction of the TV.
- In the TWIN picture screen, you can only operate and hear the sound of the main left screen (♪ appears on the screen).
- When the ◫ button is pressed, the TV screen flickers or goes blank for about one second before the TWIN pictures appear. This does not indicate a malfunction of the TV.

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Displaying multiple programs
— "PROGRAM INDEX"

The PROGRAM INDEX feature displays all of the preset program numbers on twelve or seven sub screens for direct selection.
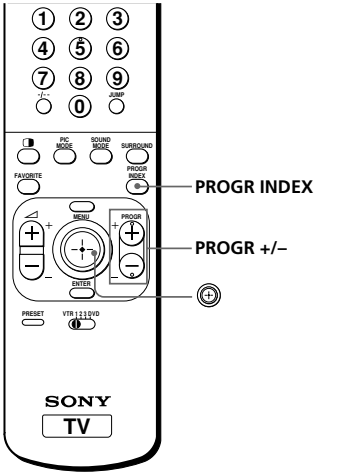
PROGR INDEX

PROGR +/–

Press PROGR INDEX.

The first twelve preset program numbers appear one by one, clockwise from the upper left corner.

Sub screens

Main screen
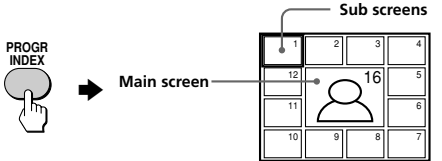
When the number of the preset program numbers is less than eight, the first seven preset program numbers appear one by one, clockwise from the upper right corner.

Main screen

Sub screens
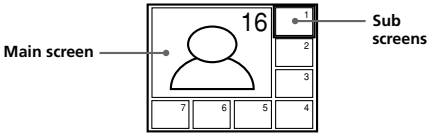
Tip
- When you press the PROGR INDEX button in the TWIN pictures mode, the left picture appears as the main screen of the PROGRAM INDEX mode.

Displaying multiple programs (continued)

To view the next or the previous twelve preset program numbers

This works only when the number of the preset program numbers is more than twelve.

Press PROGR +/– on the remote or the TV.
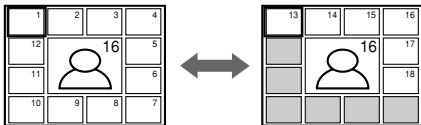
To select the desired program number directly from the sub screens

1 Move ⊕ up, down, left or right to move the frame to the screen of the program number you want to watch.
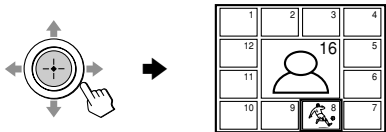
2 Press ⊕.
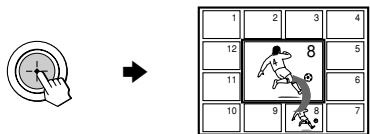
3 Press ⊕ again.
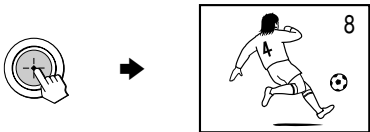
Tip
• Pressing the number buttons directly displays the program number.

To return to the normal screen

Press PROGR INDEX again, or:

1 Select "PROGRAM INDEX" from the "MULTI PICTURE" menu.
2 Press ⊕.

Tip
• You can also display multiple program numbers using the menu (see **Changing the "MULTI PICTURE" setting** on page 34).

Note
• When displaying multiple program numbers, only the sound of the main screen is heard.

Listening with surround sound

The surround feature enables you to enjoy the sound effects of a concert hall or movie theater.
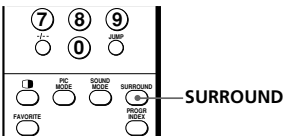
SURROUND

Press SURROUND repeatedly until you receive the desired surround sound.

SURROUND: DD VIRTUAL → SURROUND: TruSurround
SURROUND: OFF ← SURROUND: SIMULATED
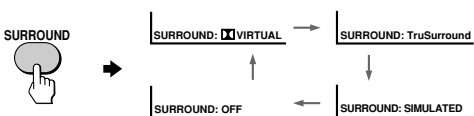
Select	To
"DD VIRTUAL"	listen to Dolby* Surround encoded sound.
"TruSurround"	listen to the surround sound that spreads out to the rear of a room.
"SIMULATED"	listen to monaural sound with a stereo-like effect.
"OFF"	turn off the surround sound.

Tip
• You can also select the surround option using the menu (see **Changing the "A/V CONTROL" setting** on page 31).

Notes
• The Virtual Dolby Surround of this model consists of Dolby Digital, Dolby Pro Logic and TruSurround.
• The "DD VIRTUAL" (Virtual Dolby Digital) is only available when receiving a Dolby Digital signal through the ⊶ DIGITAL IN (component video input) jack at the rear of your TV and "DIGITAL IN: ON" in the "A/V CONTROL" menu is selected (see pages 7 and 31).
• When using the ⊶ DIGITAL IN (component video input) jack at the rear of your TV, the available surround modes depend on the type of digital signal being received.
• "SIMULATED" uses SRS (MONO).

* Manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY", the double-D symbol (DD) and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

"**TruSurround**™" is a trademark of SRS Labs, Inc. SRS and the SRS symbol are registered trademarks of SRS Labs, Inc. in the United States and selected foreign countries. SRS and TruSurround are incorporated under license from SRS Labs, Inc. and are protected under United States Patent Nos.4,748,669 and 4,841,572 with numerous additional issued and pending foreign patents.

Enjoying stereo or bilingual programs

You can enjoy stereo sound or bilingual programs of NICAM and A2 stereo systems.

○) indicator

A/B ⊕
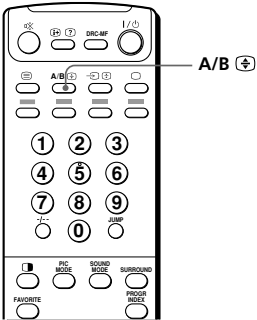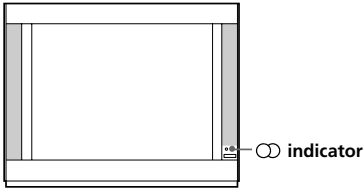
Press A/B repeatedly until you receive the sound you want.

The on-screen display changes to show the selected sound. The ○) indicator on the TV lights up red when receiving any stereo or bilingual program.

A/B ⊕ ➡ NICAM
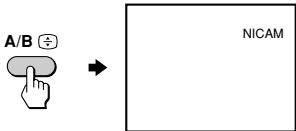
When receiving a NICAM program

Broadcasting	On-screen display (Selected sound)
NICAM stereo	**NICAM** (Stereo sound) ⟶ **MONO** (Regular sound)
NICAM bilingual	**NICAM MAIN** (Main sound) ⟶ **NICAM SUB** (Sub sound) ⟶ **MONO** (Regular sound)
NICAM monaural	**NICAM MAIN** (Main sound) ⟶ **MONO** (Regular sound)

When receiving an A2 program

Broadcasting	On-screen display (Selected sound)
A2 stereo	**MONO** (Regular sound) ⟶ **STEREO** (Stereo sound)
A2 bilingual	**MAIN** (Main sound) ⟶ **SUB** (Sub sound)

Notes
• If the signal is very weak, the sound becomes monaural automatically.
• If the stereo sound is noisy when receiving a NICAM program, select "MONO". The sound becomes monaural, but the noise is reduced.

If the sound is distorted when receiving a monaural program through the ⊓ (antenna) terminal

Press A/B repeatedly until "MONO" appears on the screen.

To cancel the monaural sound setting, press A/B again until "AUTO" appears on the screen.

MONO ⟶ **AUTO**

Notes
• The "MONO" or "AUTO" setting is memorized for each program position.
• You cannot receive a stereo broadcast signal when the TV is in the "MONO" setting. Normally, set the TV to "AUTO".

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Viewing Teletext

(Except KV-ES38M90)

Some TV stations broadcast an information service called Teletext which allows you to receive various information, such as stock market reports and news.

A/B

(red, green, yellow, blue)
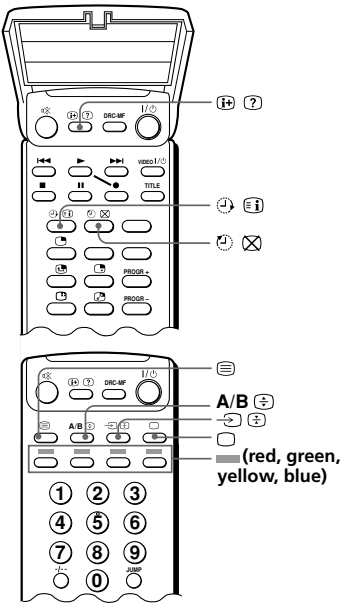
Displaying Teletext

1 Select a TV channel that carries the Teletext broadcast you want to watch.

2 Press ⊟ to display the text.

A Teletext page (normally the index page) is displayed. If there is no Teletext broadcast, "100?" is displayed at the top left corner of the screen after approximately 10 seconds.

```
P166 SECTEXT   166  FR1 MAR  03:59:09
━━━━━━━TRAVEL━━━━━━━
From Singapore
              Day  Dep/Arr  Flight  Aircraft
To PARIS     1,6  220/0588  SQ28    747
             2    2130/1235 PA115   L15
             2    2115/1330 SQ26    747
To OSAKA     2,5  1000/1715 SQ6     747
             6    0930/2015 SQ622   L10
To ROMA      2,7  2130/0745 SQ24    747
             2    2300/0915 AZ487   747
To SYDNEY    1    2210/0610 SQ21A   747
             2    2100/0835 SQ21A   747
```
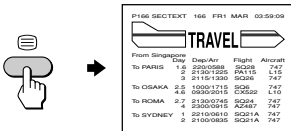
To turn off Teletext

Press ○.

Additional Teletext tasks

To	Do this
display a Teletext page on the TV picture	Press ⊟. Each time you press ⊟, the screen changes as follows: Teletext → Teletext and TV → TV.
check the contents of a Teletext service	Press ⊟i. An overview of the Teletext contents, including page numbers, appears on the screen.
select a Teletext page	Press the number buttons to enter the three-digit page number of the desired Teletext page.* If you make a mistake, reenter the correct page number. To access the next or previous page, press PROGR +/−.
hold (pause) a Teletext display	Press ⊕ to display the symbol "⊟" at the top left corner of the screen. To resume normal Teletext viewing, press ⊕ or ⊟.
reveal concealed information (e.g., an answer to a quiz)	Press ⟨?⟩. To conceal the information, press the button again.
enlarge the Teletext display	Press ⊕. Each time you press ⊕, the Teletext display changes as follows: Enlarge upper half → Enlarge lower half → Normal size.
stand by for a Teletext page while watching a TV program	1 Enter the Teletext page number that you want to refer to, then press ⊗. 2 When the page number is displayed, press ⊟ to show the text.

* You can also select a Teletext page that appears in the colored columns at the bottom of the screen using the corresponding color-coded buttons on the remote.

Using FASTEXT

This feature allows you to quickly access a Teletext page that uses FASTEXT. When a FASTEXT program is broadcast, colored menus appear at the bottom of the screen. The color of each menu corresponds to the color-coded buttons on the remote (red ▬, green ▬, yellow ▬, and blue ▬).

To access a FASTEXT menu

Press the color-coded button on the remote corresponding to the menu you want. The menu page appears on the screen after a few seconds.

Operating optional components

You can use the supplied remote to operate Sony video equipment such as Beta, 8 mm, VHS or DVD.

VIDEO I/⏻

Video equipment operation buttons

MENU

VTR
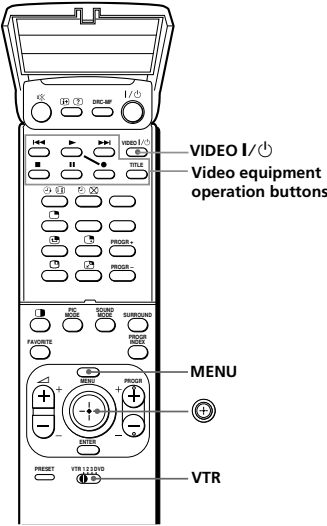
Setting up the remote to work with other connected equipment

Switch VTR to select the desired equipment type (see the chart below).

For example, to operate a Sony 8 mm VCR:

VTR 1 2 3 DVD

To control	Select
DVD	DVD
VTR1 (Beta)	1
VTR2 (8 mm)	2
VTR3 (VHS)	3

Notes
- If your video equipment is furnished with a COMMAND MODE selector, set this selector to the same position as the VTR switch.
- If the equipment does not have a certain function, the corresponding button on the remote will not operate.

Operating a VCR using the remote

To	Press
turn on/off	VIDEO I/⏻
record	► while pressing ●.
play	►
stop	■
fast forward (►►)	►►I
rewind the tape (◄◄)	I◄◄
pause	II Press again to resume normal playback.
search the picture forward (►►) or backward (◄◄)	►►I or I◄◄ during playback. Release to resume normal playback.

Operating a DVD player using the remote

To	Press
turn on/off	VIDEO I/⏻
play	►
stop	■
pause	II Press again to resume normal playback.
step through different tracks of a disc	►►I to step forward or I◄◄ to step backward.
display the title menu	TITLE
display the menu	MENU while holding down ●.
select the menu item	Move ⊕ up, down, left or right while holding down ●.

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Adjusting Your Setup (MENU)

Introducing the menu system

The MENU button lets you open a menu and change the settings of your TV. The following is an overview of the menu system.

A/V CONTROL icon
MULTI PICTURE icon
FEATURE icon
SET UP icon
CH PRESET icon

Menu level 1

Return icon
Name of the current menu
Guide mark icon

Menu level 3
Menu level 2
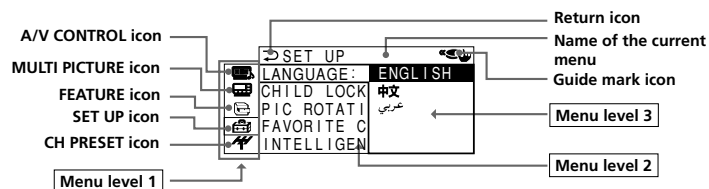
Level 1	Level 2	Level 3/Function
"A/V CONTROL"	"DRC-MF"	Select the "DRC-MF" mode: "DRC1250" → "DRC100"→ "PROGRESSIVE"
	"PICTURE MODE"	Select the picture mode: "DYNAMIC" → "STANDARD" → "HI-FINE" → "PERSONAL" → "ADJUST"
	"ADJUST"	Adjust the "PERSONAL" option: "PICTURE" → "COLOR" → "BRIGHT" → "HUE" → "SHARP"
	"SOUND MODE"	Select the sound mode: "DYNAMIC" → "DRAMA" → "SOFT" → "PERSONAL" → "ADJUST"
	"ADJUST"	Adjust the "PERSONAL" option: "BASS" → "TREBLE" → "BALANCE" → "BBE"*
	"SURROUND"	Select the "SURROUND" mode: "DD VIRTUAL" → "TruSurround" → "SIMULATED" → "OFF"
	"DIGITAL IN"	Activate or deactivate the digital audio input jack at the rear of your TV.
"MULTI PICTURE"	"PIP"	Display a PIP screen within the main picture.
	"PIP POSITION"	Change the position of the sub screen.
	"SWAP"	Swap the pictures between the main and sub screens.
	"TWIN"	Display a program number or video input beside the main screen.
	"PROGRAM INDEX"	Display all the preset program numbers at the same time.
"FEATURE"	"WIDE MODE"	Change the picture size.
	"ECO MODE"	Reduce power consumption of your TV.
	"GAME MODE"	Adjust the picture settings for video games.

Level 1	Level 2	Level 3/Function
"SET UP"	"LANGUAGE"	Change the menu language: "ENGLISH" → " 中文 " (Chinese) → " عربي " (Arabic)
	"CHILD LOCK"	Lock out specific channels.
	"PIC ROTATION"	Rotate the picture.
	"FAVORITE CH"	Set favorite channels.
	"INTELLIGENT VOL"	Adjust the volume automatically.
"CH PRESET"	"AUTO PROGRAM"	Preset channels automatically.
	"MANUAL PROGRAM"	Preset channels manually.
	"SKIP"	Skip unwanted or unused program numbers.
	"TV SYS"	Select the TV system: "B/G" → "I" → "D/K" → " M"
	"COL SYS"	Select the color system: "AUTO" →" PAL" → "SECAM" → "NTSC3.58" → "NTSC4.43"

* The BBE is manufactured by Sony Corporation under license from BBE Sound, Inc. It is covered by U.S. Patent No. 4,638,258 and No. 4,482,866. The word "BBE" and the BBE symbol are the trademarks of BBE Sound, Inc.
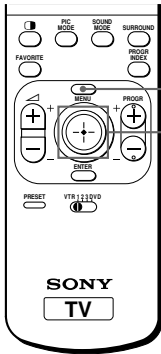
– 20 –
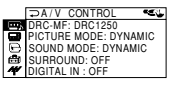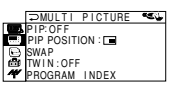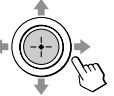
How to use the menu

Press MENU to display the menu.

MENU

A/V CONTROL
DRC-MF: DRC1250
PICTURE MODE: DYNAMIC
SOUND MODE: DYNAMIC
SURROUND: OFF
DIGITAL IN : OFF
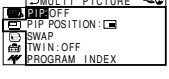
Move the button joystick (⊕) up, down, left or right to select the desired item.

MULTI PICTURE
PIP:OFF
PIP POSITION :
SWAP
TWIN : OFF
PROGRAM INDEX

Press the button joystick (⊕) to confirm the selection and/or go to the next level. You can also press ENTER on the remote to do this.

or

ENTER

MULTI PICTURE
PIP OFF
PIP POSITION :
SWAP
TWIN : OFF
PROGRAM INDEX

Other menu operations

To	Press/Move
Adjust the setting value	Move ⊕ up, down, left or right.
Move to the next/previous menu level	Move ⊕ left or right.
Cancel the menu	Press MENU.

Tips
- If you want to exit from Menu level 2 to Menu level 1, move ⊕ up or down until the return icon (⊃) is highlighted, then press ⊕ or ENTER.
- The MENU, ENTER, and ⊿ +/− buttons on the TV can also be used for the operations above.

Note
- If more than 60 seconds elapse between entries, the menu screen automatically disappears.

Changing the "A/V CONTROL" setting

MENU

ENTER
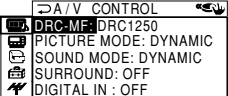
The "A/V CONTROL" menu allows you to adjust the picture and sound settings.
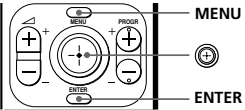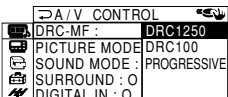
1 Press MENU.

2 Make sure the "A/V CONTROL" icon (▦) is selected, then press ⊕.

A/V CONTROL
DRC-MF: DRC1250
PICTURE MODE: DYNAMIC
SOUND MODE: DYNAMIC
SURROUND: OFF
DIGITAL IN : OFF

3 Move ⊕ up or down to select the desired item (e.g. "DRC-MF"), then press ⊕.

A/V CONTROL
DRC-MF : DRC1250
PICTURE MODE DRC100
SOUND MODE : PROGRESSIVE
SURROUND : O
DIGITAL IN : O

Select	To
"DRC-MF"	choose either "DRC1250", "DRC100" or "PROGRESSIVE".
"PICTURE MODE"	choose either "DYNAMIC", "STANDARD", "HI-FINE", "PERSONAL"*, or "ADJUST".
"SOUND MODE"	choose either "DYNAMIC", "DRAMA", "SOFT", "PERSONAL"*, or "ADJUST".
"SURROUND"	choose either "▯▯ VIRTUAL", "TruSurround", "SIMULATED", or "OFF".
"DIGITAL IN"	choose either "ON" or "OFF".

* When the "PERSONAL" mode is selected, you can receive the last adjusted picture or sound settings from the "ADJUST" option (see page 32).

Tip
- For details on the options under the "DRC-MF", "PICTURE MODE" / "SOUND MODE", "SURROUND" and "DIGITAL IN" modes, see pages 15, 14, 21 and 33 respectively.

To return to the normal screen

Press MENU.

Changing the "A/V CONTROL" setting (continued)

Adjusting the "ADJUST" options under "PICTURE MODE"

1 Move ⊕ up or down to select the desired item (e.g., "COLOR"), then press ⊕.
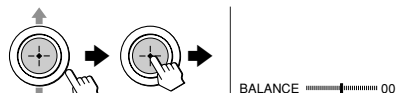
COLOR |||||||||||||||||||·········· 80

2 Adjust the value according to the following table, then press ⊕.

For	Move ⊕ down or left to	Move ⊕ up or right to
"PICTURE"	decrease picture contrast	increase picture contrast
"COLOR"	decrease color intensity	increase color intensity
"BRIGHT"	darken the picture	brighten the picture
"HUE"*	increase red picture tones	increase green picture tones
"SHARP"	soften the picture	sharpen the picture

* You can adjust "HUE" for the NTSC color system only.

3 Repeat the above steps to adjust other items.

The adjusted settings will be received when you select "PERSONAL".

Adjusting the "ADJUST" options under "SOUND MODE"

1 Move ⊕ up or down to select the desired item (e.g., "BALANCE"), then press ⊕.

BALANCE |||||||||||||·||||||||· 00

2 Adjust the value according to the following table, then press ⊕.

For	Move ⊕ down or left to	Move ⊕ up or right to
"BASS"	decrease the bass.	increase the bass.
"TREBLE"	decrease the treble.	increase the treble.
"BALANCE"	increase the left speaker's volume.	increase the right speaker's volume.
"BBE"	Move ⊕ up or down to: select "HIGH" for higher enhancement of sound clarity; select "LOW" for lower enhancement of sound clarity; select "OFF" to turn off the BBE sound.	

3 Repeat the above steps to adjust other items.

The adjusted settings will be received when you select "PERSONAL".

Setting the "DIGITAL IN" options

1 In the "DIGITAL IN" menu, move ⊕ up or down to select the desired option (see table below).

A/V CONTROL
DRC-MF : DRC   ON
PICTURE MODE   OFF
SOUND MODE
SURROUND : O
DIGITAL IN
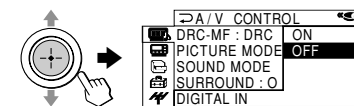
Select	To
"ON"	receive digital audio signal through ⊡ DIGITAL IN (component video input) jack.
"OFF"	receive analog audio signal through ⊡ L and R (component video input) jack.

2 Press ⊕ to confirm the selected option.

Note
• Your TV can only receive Dolby Digital or Linear PCM format digital signals through the ⊡ DIGITAL IN (component video input) jack (see page 7). Receiving any other format digital signal may cause unwanted noise or no sound from the speakers.

Tip
• For details on the menu system and how to use the menu, refer to **Introducing the menu system** on page 28.

Changing the "MULTI PICTURE" setting

The "MULTI PICTURE" menu allows you to use the Picture-in-Picture (PIP), TWIN pictures, or PROGRAM INDEX features.

PROGR INDEX

MENU

SONY

TV
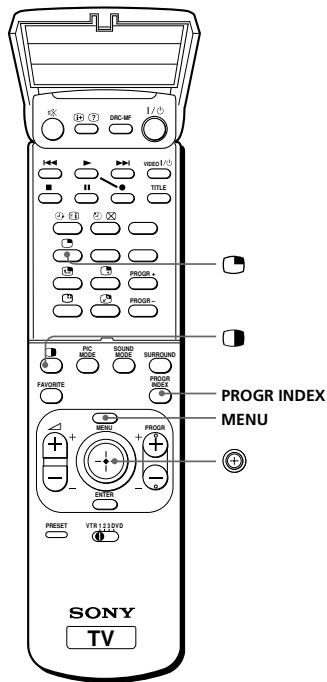
1 Press MENU.

2 Move ⊕ up or down to select the "MULTI PICTURE" icon (▦), then press ⊕.

```
⯈MULTI  PICTURE  ◖◖◗
    PIP:OFF
    PIP  POSITION:▭
    SWAP
    TWIN:OFF
    PROGRAM  INDEX
```
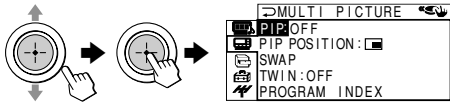
3 Move ⊕ up or down to select the desired item (e.g., "PIP"), then press ⊕.

```
⯈MULTI  PICTURE  ◖◖◗
    PIP :        ON
    PIP  POSITION   OFF
    SWAP
    TWIN:OFF
    PROGRAM  IND
```
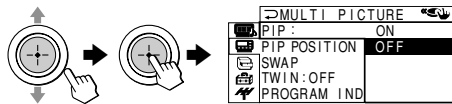
Select	To
"PIP"	display the PIP screen within the main picture. Move ⊕ up or down to select "ON", then press ⊕. To cancel, press ▢ or select "OFF", then press ⊕.
"PIP POSITION"	change the position of the PIP screen. Move ⊕ up or down to select the desired position, then press ⊕.
"SWAP"	swap the main and PIP screens, or right and left pictures of the TWIN pictures.
"TWIN"	display a different TV program or video beside the main picture. Move ⊕ up or down to select "ON", then press ⊕. To cancel, press ▢ or select "OFF", then press ⊕.
"PROGRAM INDEX"	view multiple program numbers on the sub-screens. To cancel, press PROGR INDEX.

To return to the normal screen

Press MENU.

Tip
• For details on the menu system and how to use the menu, see **Introducing the menu system** on page 28.

Changing the "FEATURE" setting

The "FEATURE" menu allows you to change the size of the picture on the screen when receiving wide mode (16:9) picture signals. You can also adjust the picture setting that is suitable for viewing video games, and reduce the power consumption of your TV.

MENU

ENTER

SONY
TV
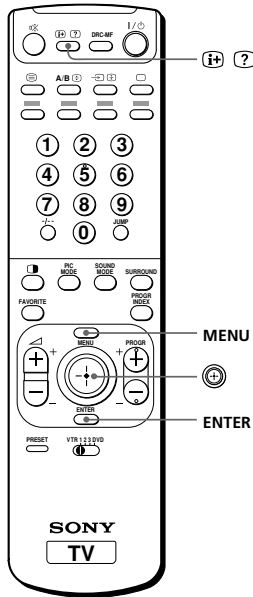
1 Press MENU.

2 Move ⊕ up or down to select the "FEATURE" icon (▱), then press ⊕.

⊕ ➡ ⊕ ➡

FEATURE
WIDE MODE: OFF
ECO MODE: OFF
GAME MODE: OFF

3 Move ⊕ up or down to select the desired item (e.g., "WIDE MODE"), then press ⊕.

⊕ ➡ ⊕ ➡

⊃ FEATURE
WIDE MODE   ON
ECO MODE : O OFF
GAME MODE :
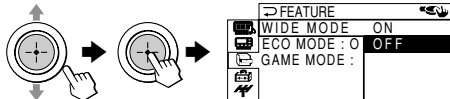
Select	To
"WIDE MODE"	change the size of the picture when receiving wide-mode (16:9) picture signal. Move ⊕ up or down to select "ON", then press ⊕. To restore the normal picture size, select "OFF", then press ⊕.
"ECO MODE"	reduce power consumption of your TV to save energy. Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF", then press ⊕.
"GAME MODE"	adjust the picture setting that is suitable to view video games. Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF", then press ⊕.

Notes
- When you turn on "ECO MODE", the picture may become dimmer.
- "WIDE MODE" and "GAME MODE" is available only when receiving signals through the ⊸ (video input), ⊸ (S video input), or ⊶ (component video input) jacks at the side and rear of your TV.
- If "ECO MODE" is on, the ECO MODE (⚡) icon will appear at the bottom right corner of the screen when you turn on the TV or when you press ⓘ on the remote (see pages 10 and 11).

To return to the normal screen

Press MENU.

Tip
- For details on the menu system and how to use the menu, see **Introducing the menu system** on page 28.

Changing the "SET UP" setting

The "SET UP" menu allows you to: change the menu language, block program numbers, adjust the picture position, program your favorite channels, and adjust the volume automatically.
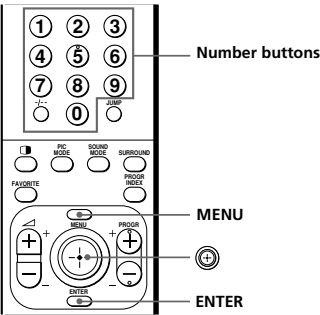
Number buttons

MENU

ENTER

1 Press MENU.

2 Move ⊕ up or down to select the "SET UP" icon (⊞), then press ⊕.

```
⊃SET UP
LANGUAGE:ENGLISH
CHILD LOCK:PR01 OFF
PIC ROTATION
FAVORITE CH
INTELLIGENT VOL:OFF
```
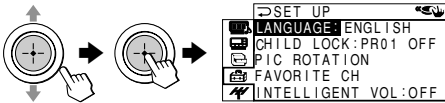
3 Move ⊕ up or down to select the desired item (e.g., "CHILD LOCK"), then press ⊕.

```
⊃SET UP
LANGUAGE:E
CHILD LOCK  PR 01
PIC ROTATI
FAVORITE C ON
INTELLIGEN OFF
```

Select	To
"LANGUAGE"	change the menu language (see page 12).
"CHILD LOCK"	block program numbers (see page 39).
"PIC ROTATION"	adjust the picture position when it is not aligned with the TV screen. Move ⊕ up or right to adjust the position clockwise, then press ⊕. Move ⊕ down or left to adjust the position counterclockwise, then press ⊕.
	PIC ROTATION ⊟◀⬜▶⊞
"FAVORITE CH"	program your favorite channels (see page 40).
"INTELLIGENT VOL"	adjust the volume of all program numbers automatically. Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF", then press ⊕.

To return to the normal screen

Press MENU.

Blocking program numbers ("CHILD LOCK")

1 After selecting "CHILD LOCK", either move ⊕ up or down, or press the number buttons (or PROGR +/–) to select the desired program number (e.g. PR 06), then press ⊕.

or

```
⊃SET UP
LANGUAGE:E
CHILD LOCK  PR 06
PIC ROTATI
FAVORITE C ON
INTELLIGEN OFF
```
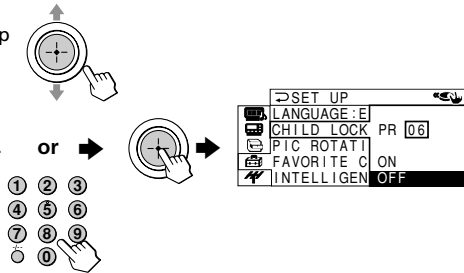
2 Move ⊕ up or down to select "ON", then press ⊕. To cancel, select "OFF".

The lock symbol (🔒) appears on the screen when "ON" is selected.

```
⊃SET UP
LANGUAGE:ENGLISH
CHILD LOCK PR06 ON
PIC ROTATION
FAVORITE CH
INTELLIGENT VOL:OFF
```
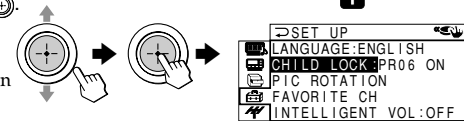
If a locked program number is selected, the lock symbol appears on the screen.

🔒 6

3 Repeat steps 1 and 2 to lock other program numbers.

To return to the normal screen

Press MENU.

Note
• If you preset a locked program number, that program number will be unlocked automatically (see page 41).

– 25 –

Changing the "SET UP" setting (continued)

Programming the favorite channels setting

1 After selecting "FAVORITE CH", make sure "MODE" is selected, then press ⊕.

FAVORITE CH
MODE :   AUTO
1.PR01   MANUAL
2.PR02
3.PR06
4.PR08

2 Move ⊕ up or down to select "MANUAL", then press ⊕.

FAVORITE CH
MODE:MANUAL
1.PR01   5.PR09
2.PR02   6.PR11
3.PR06   7.PR13
4.PR08

3 Move ⊕ up or down to select the favorite channel you want to program, then press ⊕.

FAVORITE CH
MODE:MANUAL
1.PR01   5.PR09
2.PR02   6.PR11
3.PR06   7.PR13
4.PR08

4 Move ⊕ up or down to change the program number, then press ⊕.

FAVORITE CH
MODE:MANUAL
1.PR01   5.PR09
2.PR02   6.PR11
3.PR05   7.PR13
4.PR08

5 Repeat steps 3 and 4 to set other favorite channels.

To return to the normal screen

Press MENU.

Note
• If you press the PROGR +/– buttons or number buttons in step 4 above, the TV will display the program number immediately.

Tip
• To view the favorite channels that you have programmed, refer to **Viewing your favorite channels** on page 16.

Changing the "CH PRESET" setting

The "CH PRESET" menu allows you to adjust the setup of your TV. For example, you can manually tune in a channel with a weak signal that fails to be tuned in by automatic presetting.
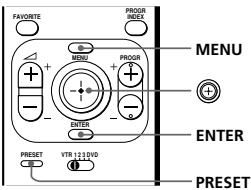
1 Press MENU.

2 Move ⊕ up or down to select the "CH PRESET" icon (𝒲), then press ⊕.

CH PRESET
AUTO PROGRAM
MANUAL PROGRAM
SKIP:PR06 OFF
TV SYS:B/G
COL SYS:AUTO

3 Move ⊕ up or down to select the desired item (e.g., "MANUAL PROGRAM"), then press ⊕.

MANUAL PROGRAM
PR:06
TV SYS:B/G
SENS:HIGH
VHF LOW
FINE:AUTO

Select	To
"AUTO PROGRAM"	preset channels automatically.
"MANUAL PROGRAM"	preset channels manually. See **Presetting channels manually** on page 42.
"SKIP"	skip unwanted or unused program numbers. 1 Either move ⊕ up or down, or press the number buttons (or PROGR +/–) until the unused or unwanted program number appears, then press ⊕. 2 Select "ON", then press ⊕. 3 To disable other program numbers, repeat steps 1 and 2. To cancel, select "OFF" in step 2.
"TV SYS"	select the TV system.
"COL SYS"	select the color system. Normally, set this to "AUTO".

To return to the normal screen

Press MENU.

Tip
• For details on the menu system and how to use the menu, refer to **Introducing the menu system** on page 28.

*Changing the "CH PRESET" setting (continued)*

Presetting channels manually

1 After selecting "MANUAL PROGRAM", select the program number to which you want to preset a channel.

(1) Make sure "PR" is selected, then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 06
TV SYS:B/G
SENS:HIGH
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:AUTO
```

(2) Move ⊕ up or down until the program number you want to preset (e.g., program number "10") appears on the menu, then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10
TV SYS:B/G
SENS:HIGH
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:AUTO
```

Tips
• You can also select the "MANUAL PROGRAM" menu directly by pressing the PRESET button on the remote.
• You can also select the program number with the PROGR +/– or number buttons.

2 Select the desired channel.

(1) Make sure either "VHF LOW", "VHF HIGH", or "UHF" is selected, then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10
TV SYS:B/G
SENS:HIGH
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:AUTO
```

(2) Move ⊕ up or down until the desired channel's broadcast appears on the TV screen, then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10
TV SYS:B/G
SENS:HIGH
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:AUTO
```

3 If the sound of the desired program number is abnormal, select the appropriate TV system.

(1) Move ⊕ up or down to select "TV SYS", then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10     B/G
TV SYS:    I
SENS:HIG D/K
VHF LOW ▌▌▌▌▌▌ M
FINE:AUTO
```

(2) Move ⊕ up or down until the sound becomes normal, then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10
TV SYS:I
SENS:HIGH
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:AUTO
```

4 If you are not satisfied with the picture and sound quality, you may be able to improve them by using the "FINE" tuning feature.

(1) Move ⊕ up or down to select "FINE", then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10     AUTO
TV SYS:I   MANUAL
SENS:HIG
VHF LOW ▌▌▌▌▌
FINE:
```

(2) Move ⊕ up or down to select "MANUAL", then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10     AUTO
TV SYS:I   MANUAL
SENS:HIG
VHF LOW ▌▌▌▌▌  – +
FINE:
```

(3) Move ⊕ either up, down, left or right until the picture and sound quality are optimal, then press ⊕.
The + or – icon on the menu flashes while tuning.


```
⤺MANUAL  PROGRAM
PR: 10
TV SYS:I
SENS:HIGH
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:MANUAL
```

5 If the TV signal is too strong and the picture is distorted, you can adjust the TV reception sensitivity.

(1) Move ⊕ up or down to select " SENS", then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10     HIGH
TV SYS:I   LOW
SENS:
VHF LOW ▌▌▌▌▌
FINE:MANUA
```

(2) Move ⊕ up or down to select "LOW", then press ⊕.


```
⤺MANUAL  PROGRAM
PR: 10
TV SYS:I
SENS:LOW
VHF LOW ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
FINE:MANUAL
```

To return to the normal screen

Press MENU.

Notes
• The TV system ("TV SYS") and the TV reception sensitivity (" SENS") settings are memorized for each program number.
• If you preset a locked program number, that program number will be unlocked automatically (see page 39).

Self-diagnosis function
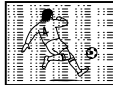
Your TV is equipped with a self-diagnosis function. If there is a problem with your TV, the ⏻ (standby) indicator flashes red. The number of times the ⏻ indicator flashes indicates the possible causes.

Front of TV
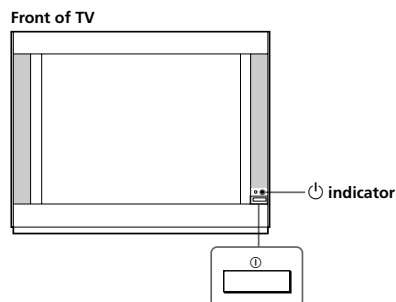
⏻ **indicator**

1 Check that the ⏻ indicator flashes red several times between three-second intervals.

2 Count the number of times the ⏻ indicator flashes.

3 Press ⏻ (main power) to turn off your TV.

4 Inform your nearest Sony service center about the number of times the ⏻ indicator flashed.
Be sure to note the model name and serial number located on the rear of your TV.

Troubleshooting

If you have any problem while viewing your TV, please check the following troubleshooting guide. If the problem persists, contact your Sony dealer.

Symptom	Possible cause	Solutions	Page
Snowy picture	• The connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and at the wall.	4
	• Channel presetting is inappropriate or incomplete.	• Press the PRESET button to display the "MANUAL PROGRAM" menu and preset the channel again.	42
Noisy sound	• The antenna type is inappropriate.	• Check the antenna type (VHF/UHF). Contact a Sony dealer for advice.	–
or	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
"NO SIGNAL" appears on the screen and the picture is dimmed.	• Signal transmission is low.	• Try using a booster.	–
Distorted picture	• Broadcast signals are too strong.	• Press the PRESET button to display the "MANUAL PROGRAM" menu. Then, select "⚡ SENS: LOW".	43
		• Turn off or disconnect the booster if it is in use.	–
Noisy sound			
Good picture	• The TV system setting or channel presetting is inappropriate or incomplete.	• If the sound of all the channels are noisy, display the "CH PRESET" menu and select "AUTO PROGRAM" to preset the channels again.	41
		• If the sound of some channels are noisy, select the channel, then display the "CH PRESET" menu and select the appropriate TV system ("TV SYS").	42
Noisy sound	• The digital audio signal is inappropriate.	• Set "DIGITAL IN: OFF" in the "A/V CONTROL" menu and connect ⊡ L and R (component video input) on your TV to receive analog audio signals.	7, 33

Troubleshooting (continued)

Symptom	Possible cause	Solutions	Page
No picture **No sound** (image)	• The power cord, antenna or VCR is not connected.	• Check the power cord, antenna and the VCR connections.	4
	• The TV is not turned on.	• Press I/⏻ (power).	10
		• Press ① (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	11
Good picture (image) **No sound** (image)	• The volume level is too low.	• Press ⊿ + to increase the volume level.	11
	• The sound is muted.	• Press ⊠ to cancel the muting.	11
	• The digital audio signal is inappropriate.	• Set "DIGITAL IN: OFF" in the "A/V CONTROL" menu and connect ⊡ L and R (component video input) on your TV to receive analog audio signals.	7, 33
	• The "DIGITAL IN" setting in the "A/V CONTROL" menu is inappropriate.	• When connecting to ⊡ (component video input) on your TV, set "DIGITAL IN: ON" to receive digital audio signals through ⊡ DIGITAL IN, or set "DIGITAL IN: OFF" to receive analog audio signals through ⊡ L and R.	33
Dotted lines or stripes (image)	• There is local interference from cars, neon signs, hair dryers, power generators, etc.	• Do not use a hair dryer or other equipment near the TV.	–
		• Adjust the antenna direction for minimum interference. Contact a Sony dealer for advice.	–
Double images or "ghosts" (image)	• Broadcast signals are reflected by nearby mountains or buildings.	• Use a highly directional antenna.	–
		• Use the fine tuning ("FINE") function.	43
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Use of a booster is inappropriate.	• Turn off or disconnect the booster if it is in use.	–

Symptom	Possible cause	Solutions	Page
No color (image)	• The color level setting is too low.	• Display the "A/V CONTROL" menu and select "ADJUST" of "PICTURE MODE", then adjust the "COLOR" level.	32
	• The color system setting is inappropriate.	• Display the "CH PRESET" menu and check the color system ("COL SYS") setting (usually set this to "AUTO").	41
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
Abnormal color patches (image)	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.	• Locate external speakers or other equipment away from the TV. Do not move the TV while the TV is turned on. Press ① (main power) on the TV to turn off the TV for about 15 minutes, then turn it on again.	–
TV cannot receive stereo broadcast signal.	• The stereo reception setting is inappropriate.	• Press A/B until "AUTO" appears on the screen.	22
Stereo broadcast sound switches on and off or is distorted. **or**	• The connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and on the wall.	4
	• The antenna direction needs adjustment.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
The sound switches between stereo and monaural frequently.	• The broadcast signal has a transmission problem.	• Press A/B until a better sound is heard.	22
"100?" appears at the top of the screen after approximately 10 seconds and there is no Teletext display.	• The channel carries no Teletext broadcast.	—	24
Teletext display is incomplete (snowy picture or double images).	• Connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR, and at the wall.	4
	• The antenna direction is inappropriate.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Signal transmission is too low.	• Try using a booster.	–
		• Use the fine tuning ("FINE") function.	43
Picture slant (image)	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.	• Keep external speakers or other electrical equipment away from the TV.	–
		• Display the "SET UP" menu and adjust "PIC ROTATION" until the picture position is optimal.	38

Troubleshooting (continued)

Symptom	Possible cause	Solutions	Page
Lines moving across the TV screen.	• There is interference from external sources, e.g., heavy machineries, nearby broadcast station.	• Use the fine tuning ("FINE") function.	43
The ⏻ indicator on your TV flashes red several times between three-second intervals.	• Your TV may need servicing.	• Contact your nearest Sony service center.	44
Cannot play shooting games.	• Some shooting games which involve pointing a light beam at the TV screen with an electronic gun or rifle cannot be used with your TV. For detail, see the instruction manual supplied with the video game software.	—	–
TV cabinet creaks.	• Changes in room temperature sometimes make the TV cabinet expand or contract, causing a noise. This does not indicate a malfunction.	—	–
A small "boom" sound is heard when the TV is turned on.	• The TV's demagnetizing function is working. This does not indicate a malfunction.	—	–
Static discharge is felt when touching the TV cabinet.	• This is the same static discharge that is felt when touching metal door handles or car doors especially when the air is dry, for example in winter. This does not indicate a malfunction.	—	–

Overview of controls

Front, top and side panels

Top panel

Side panel
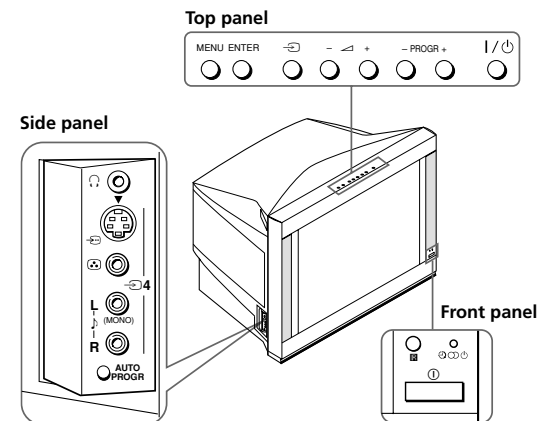
Front panel

Button	Function	Page
Side panel		
⌒	Headphone jack.	–
AUTO PROGR	Preset channels automatically.	5
Front panel		
①	Turn off completely or turn on the TV.	10
⏻	Standby indicator.	10
⏰	Wake Up indicator.	13
◯◯	Stereo/bilingual indicator.	22
Top panel		
I/⏻	Turn off temporarily or turn on the TV.	10
PROGR +/–	Select program number.	10
⊿ +/–	Adjust volume.	11
⊸	Select TV or video input.	11
ENTER	Confirm selected items.	30
MENU	Display the menu.	30

– 30 –

Remote control
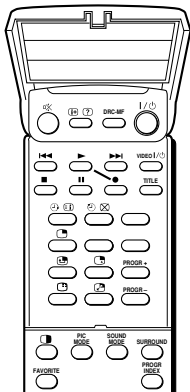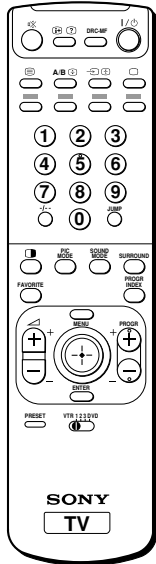
The names/symbols of buttons on the remote are indicated in different colors to represent the available functions.

Label color	Button function
White	For general TV operations
Green	For Teletext operations
Yellow	For PIP operations

Button	Function	Page
I / ⏻	Turn off temporarily or turn on the TV.	10
PROGR +/–	Select program number.	10
0 – 9, -/--	Input numbers.	10
(i+)	Display on-screen information.	11
⊠	Mute the sound.	11
▭	Display the TV program.	11
⊸	Select TV or video input.	11
∠ +/–	Adjust volume.	11
JUMP	Jump to previous program number.	11
Timer operations		
⏲	Set TV to turn on automatically.	13
⏲	Set TV to turn off automatically.	13
SOUND MODE	Select sound mode.	14
PIC MODE	Select picture mode.	14
DRC-MF	Select DRC-MF mode.	15
Favorite Channel operations		
FAVORITE	Display favorite channels.	16
◉	Select desired program number.	16
PIP and Twin picture operations		
▭	Display the PIP screen.	17
▯	Display TWIN pictures.	17
◉	Adjust Twin picture size.	18
PROGR +/ PROGR –	Change program in PIP/ Twin picture.	18
▭	Select video input for PIP/ Twin picture.	18
▱	Swap main and PIP/Twin picture.	18
▭	Freeze PIP screen.	18
▭	Adjust position of PIP screen.	18
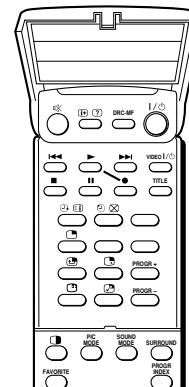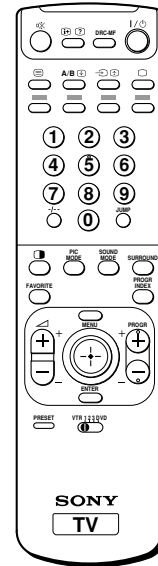
Button	Function	Page
Program Index operations		
PROGR INDEX	Display all preset program numbers.	19
PROGR +/–	View next/previous 12 program numbers.	20
◉	Select desired program number.	20
SURROUND	Select surround mode.	21
Stereo/bilingual operations		
A/B	Select stereo/bilingual mode.	22
Teletext operations		
▤	Display Teletext broadcast.	24
(i)	Display Teletext service contents.	25
⊞	Stop Teletext page from scrolling.	25
(?)	Reveal concealed information.	25
⊞	Enlarge the Teletext display.	25
⊠	Show TV screen while waiting for Teletext page.	25
0 - 9	Input Teletext page number.	25
PROGR +/–	Display the next or previous page.	25
▬▬ (red, green, yellow, blue)	Access a FASTEXT menu.	25
Optional components operations		
VTR	Set up the remote.	26
VIDEO I / ⏻	Power.	27
TITLE	Display the title menu.	27
►	Play.	27
►►I	Fast forward/Search forward.	27
I◄◄	Rewind/Search backward.	27
●	Record.	27
■	Stop.	27
II	Pause.	27
Menu operations		
MENU	Display the menu.	30
◉	Select, adjust and confirm selected items.	30
ENTER	Confirm selected items.	30
PRESET	Display "MANUAL PROGRAM" menu.	42

SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

10 screws
(+BVTP 4X20)

2-2. SPEAKER BOX REMOVAL

② SPEAKER BOX
L/R ASSEMBLY

① Two screws
(TP + TWH 4X25)
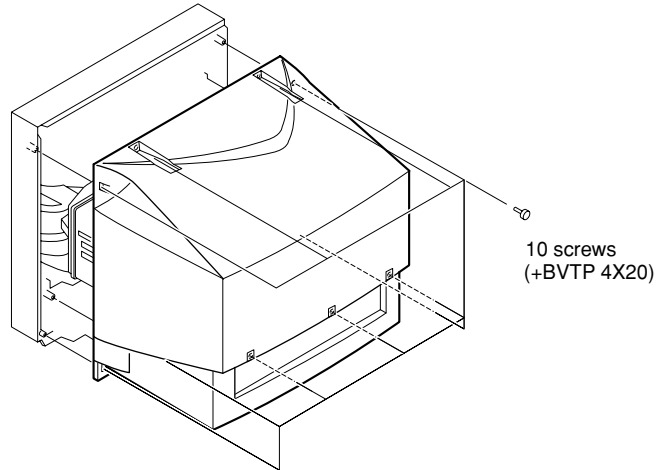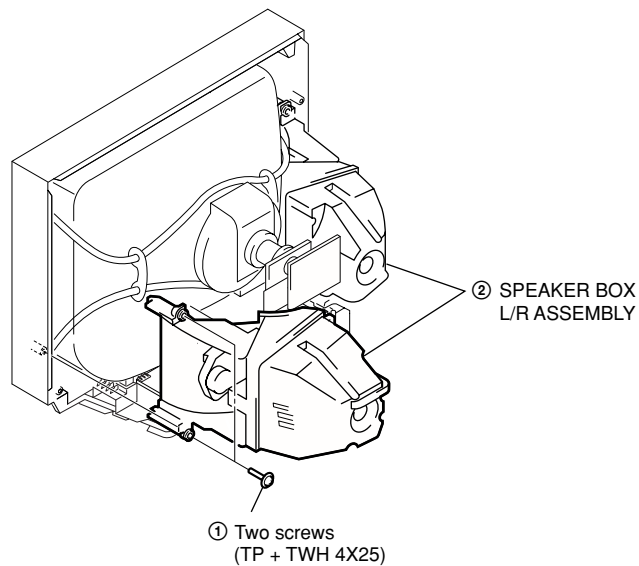
2-3. H2 BOARD REMOVAL

Caution: Please make sure that the red colour taped point is just placed with the purse lock when treating the leads to H2 board. If lead treatment is wrongly arranged, it will affect the door opening and closing malfunction.

Red tape

① One screw
(+BVTP 4X16)

① One spring

③ H2 Board

② Two screws
(+BVTP 3X25)

④ Two shafts

⑤ Two screws
(+BVTP 3X12)
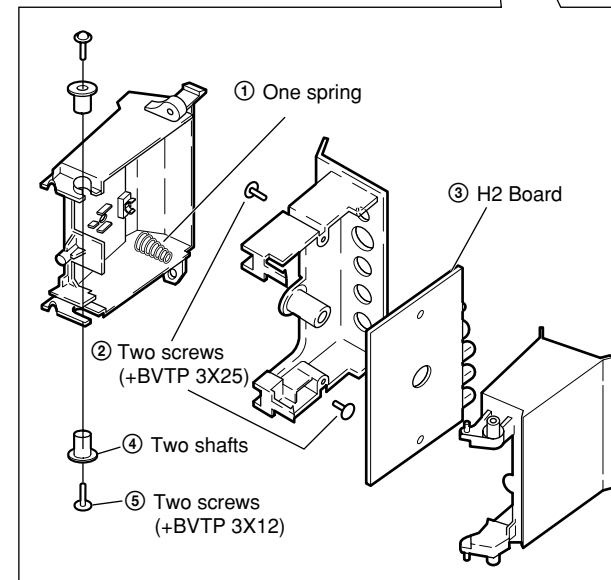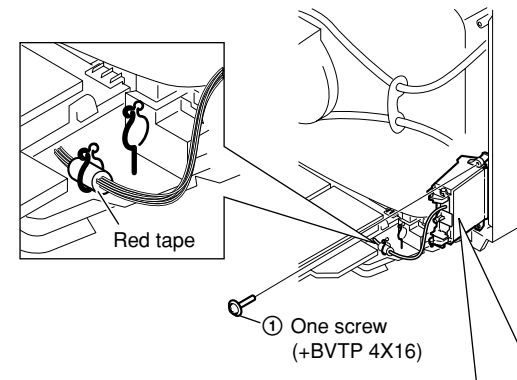
2-4. CHASSIS ASSY REMOVAL

CRT Supporter

Chassis

2-5. SERVICE POSITION

A board

D board

2-6. DH BOARD REMOVAL

DH board

① 5 screws
(+BVTP 3X12)

Blacket

2-7. J BOARD REMOVAL

Metal Case

⑤ J sheild cover

④ J board

① Two screws
(+BVTP 3X12)

② Four screws
(+BVTP 3X12)

① Three screws
(+BVTP 3X12)

③ Terminal bracket
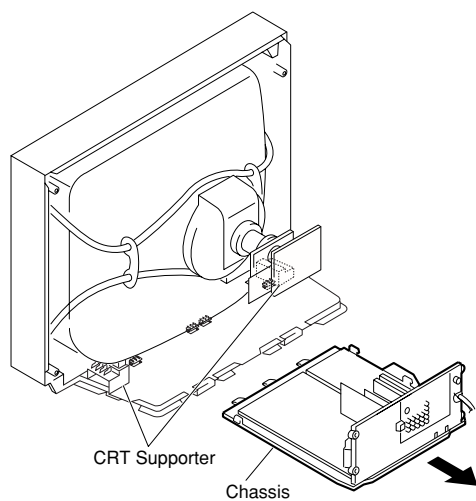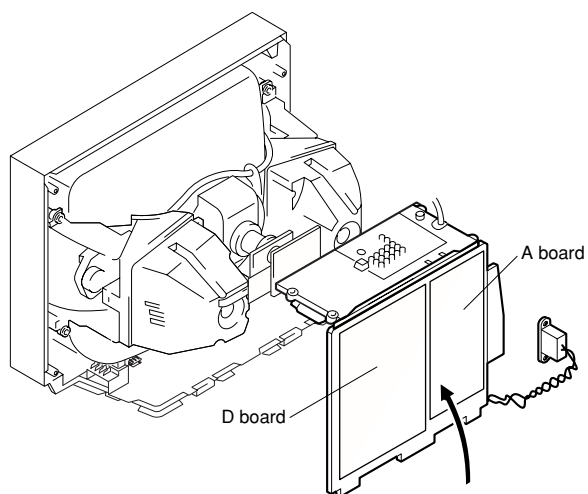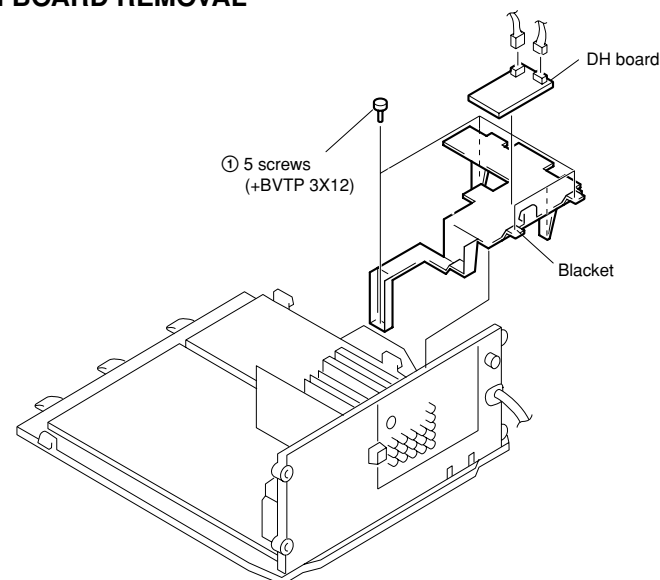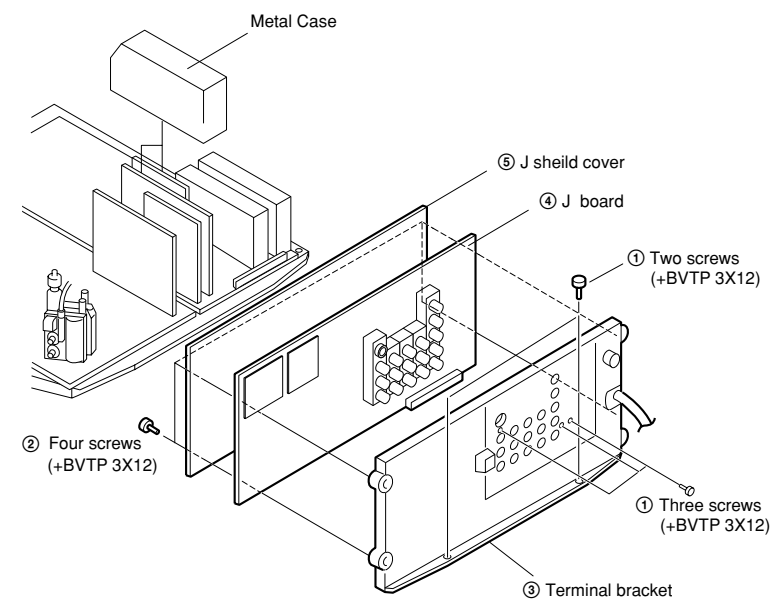
2-8. B3, D1 AND E BOARDS REMOVAL

NOTE : V Board is not used for KV-ES38M90.

- ① Three screws (+BVTP 3X12)
- ⑥ Metal Case
- ⑧ E board
- ⑦ D1 board
- ⑤ V board
- ④ B3 board
- ② Two connectors
- ③ Two connectors
- Driver
- V board

2-9. A AND D BOARDS REMOVAL

- ① Four screws (+BVTP 3X12)
- ② A board
- ① Three connectors
- ③ D board
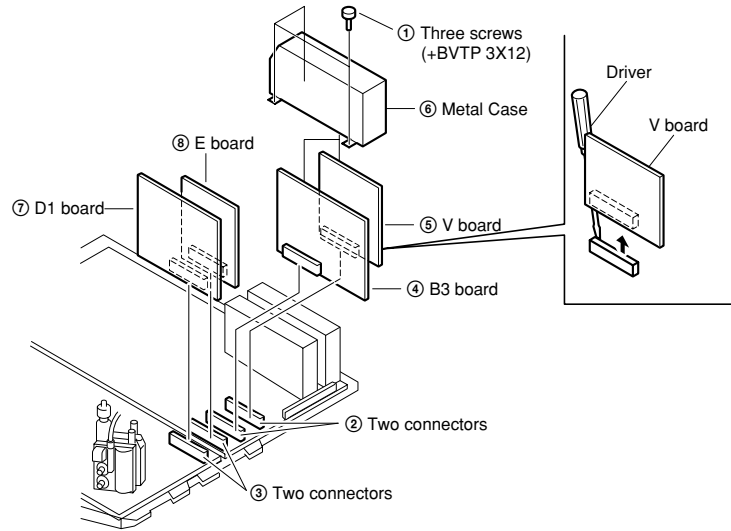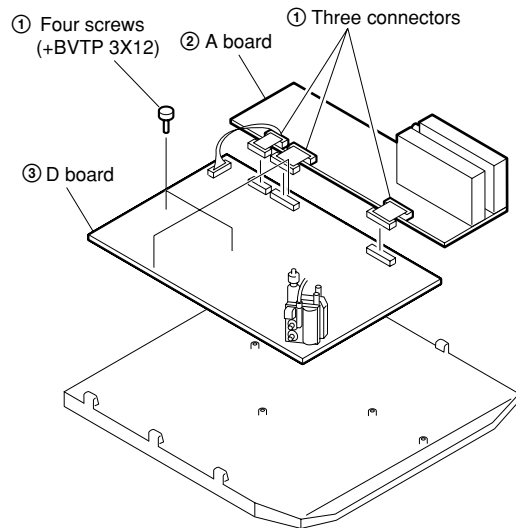
2-10. H1 BOARD REMOVAL

NOTE : Push the hook down using the tip of a screwdriver and at the same time pull the H1 bracket.

- Driver
- ①
- H1 bracket
- ②
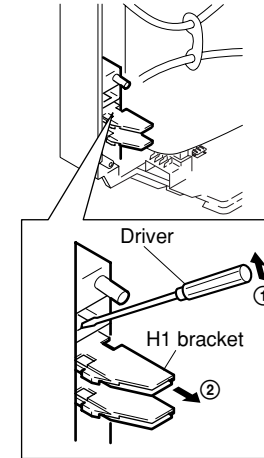
2-11. F2 BOARD REMOVAL

NOTE : To remove F2 board, firstly remove the H1 board. Then, push the hook down using the tip of a screwdriver and at the same time pull the F2 bracket.

Caution : When removing the F2 board, please turn off the main AC supply and disconnect the AC plug.

- Driver
- ①
- F2 bracket
- ②
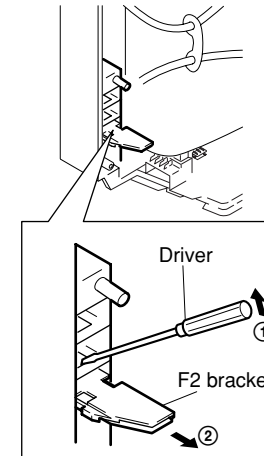
2-12. DEMAGNETIZATION COIL REMOVAL

③ Two DGC clips

② DGC band

④ Demagnetization coil

① Two DGC holders

2-13. TOP SWITCH REMOVAL (H3 BOARD REMOVAL)

NOTE : To remove H3 board, the CRT has to be removed first.

⑤ One screw (+BVTP 3X8)

③ H3 board

② H3 bracket

④ Top switch

① Two screws (+BVTP 4X12)

2-14. G2 LEAD REMOVAL

NOTE : Insert pin to both edge holes on socket and release the lock.

① Pin

②
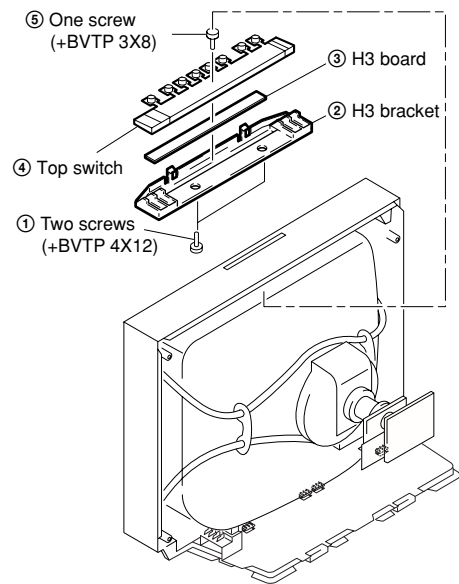
2-15. PICTURE TUBE REMOVAL

    i)   Prior to picture tube removal, please remove the front cover first.

Caution : Aluminium frame is easily scratched if extra caution is not taken when handling it.
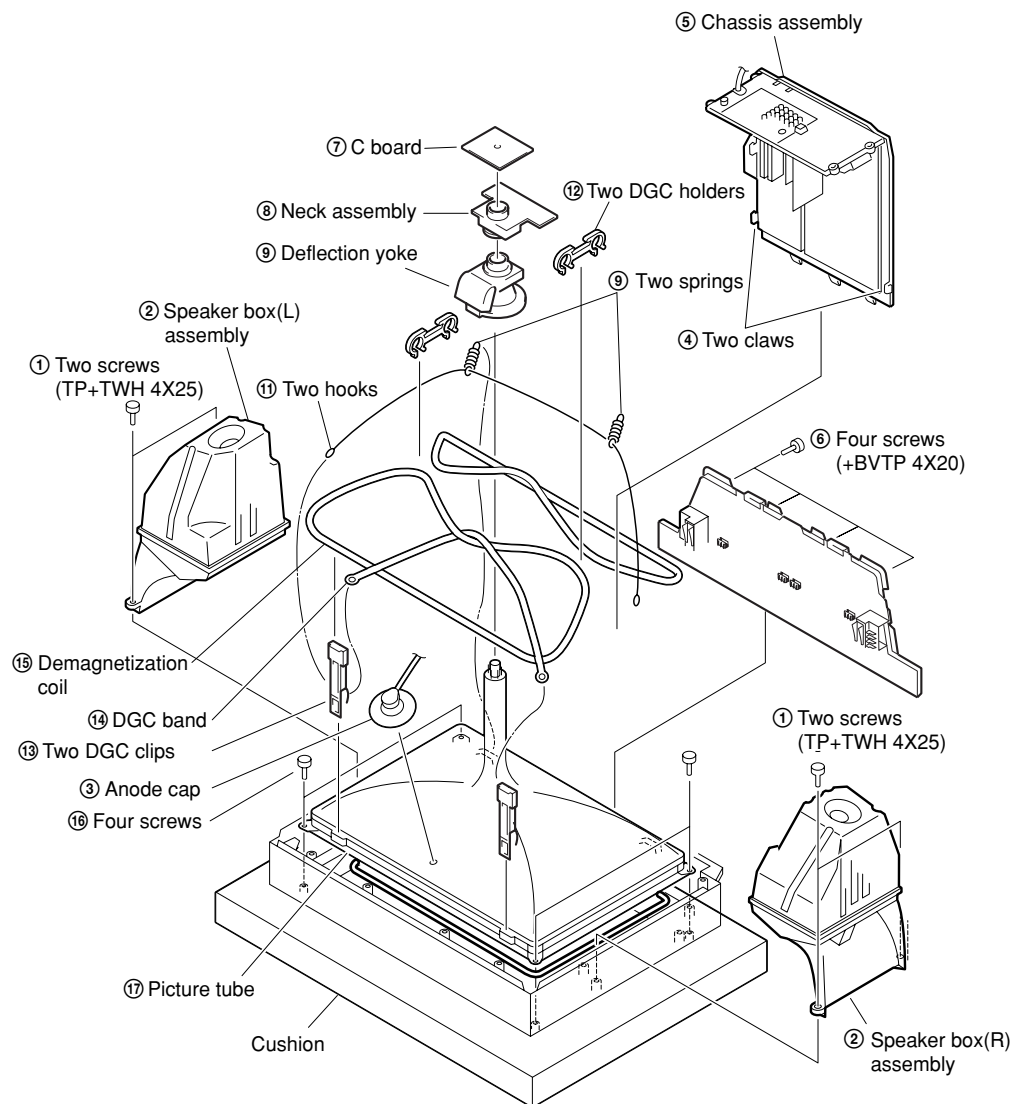
2-16. FRAME SUB-ASSY DISASSEMBLY

①

⑤ Chassis assembly

⑦ C board

⑫ Two DGC holders

⑧ Neck assembly

⑨ Deflection yoke

⑨ Two springs

② Speaker box(L) assembly

④ Two claws

① Two screws (TP+TWH 4X25)

⑪ Two hooks

⑥ Four screws (+BVTP 4X20)

⑮ Demagnetization coil

⑭ DGC band

⑬ Two DGC clips

③ Anode cap

⑯ Four screws

① Two screws (TP+TWH 4X25)

⑰ Picture tube

Cushion

② Speaker box(R) assembly

Screw Special (Dia. 8) (+) TP 4 × 9

× 1

× 2

× 2

× 1

Sp Screw × 1

Sp Screw × 1

Sp Screw × 1

Sp Screw × 2

Fasten × 1

× 1

× 1

CRT Bracket

Corner Block

FRAME SUB ASSY, RIGHT REMOVAL

Screw Special (Dia. 8)
(+) TP 4 × 9

☊ × 2

Slide

☊ × 2

Screw Special (Dia. 8)
(+) TP 4 × 9
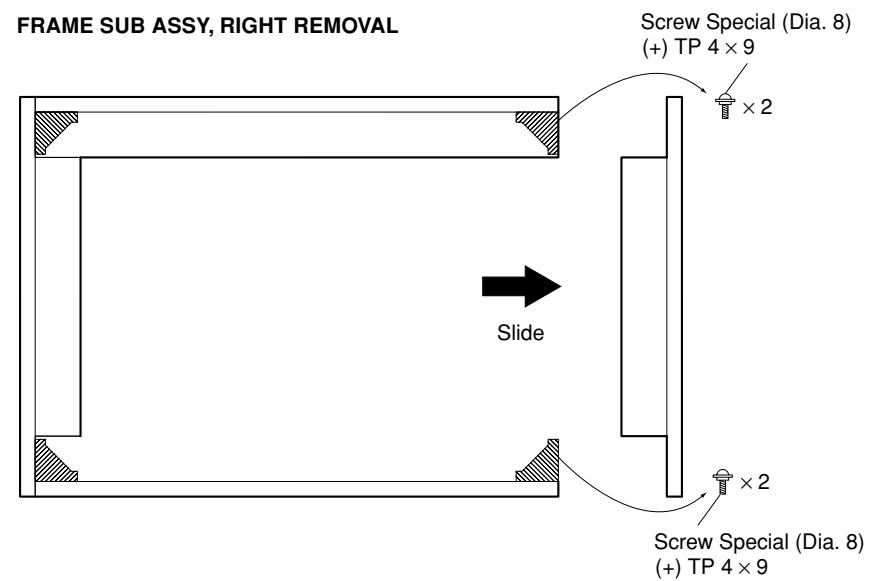
FRAME SUB ASSY, LEFT REMOVAL

Screw Special (Dia. 8)
(+) TP 4 × 9

☊ × 2

Slide

☊ × 1

Screw Special (Dia. 8)
(+) TP 4 × 9
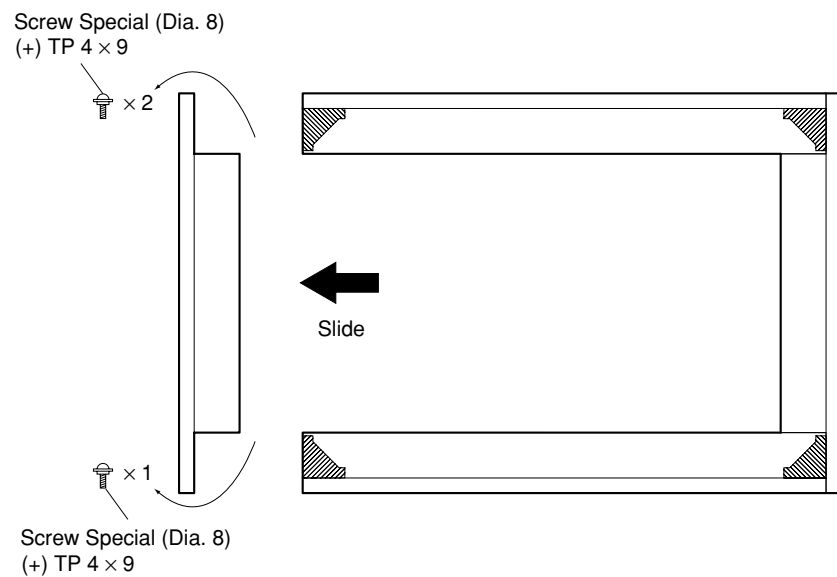
FRAME SUB ASSY, TOP REMOVAL

a)

☊ × 2
Screw Special (Dia. 8)
(+) TP 4 × 9

Slide

b)

Corner Block

☊ × 2

☊ × 2

Screw Special (Dia. 8)
(+) TP 4 × 9

Screw Special (Dia. 8)
(+) TP 4 × 9
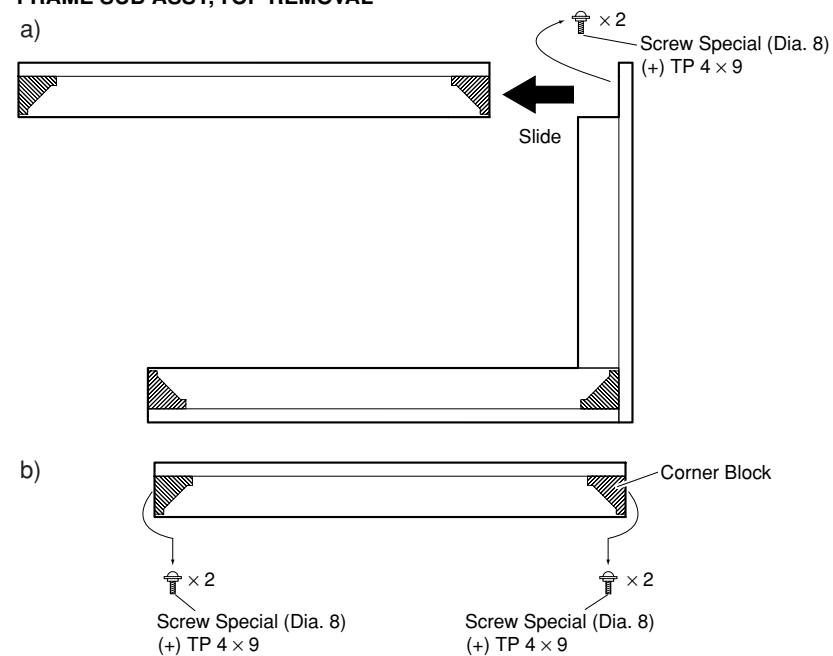
FRAME SUB ASSY, BOTTOM REMOVAL

a)

Screw Special (Dia. 8)
(+) TP 4 × 9

× 2

Slide

Corner Block

b)

× 2

× 2

Screw Special (Dia. 8)
(+) TP 4 × 9

Screw Special (Dia. 8)
(+) TP 4 × 9
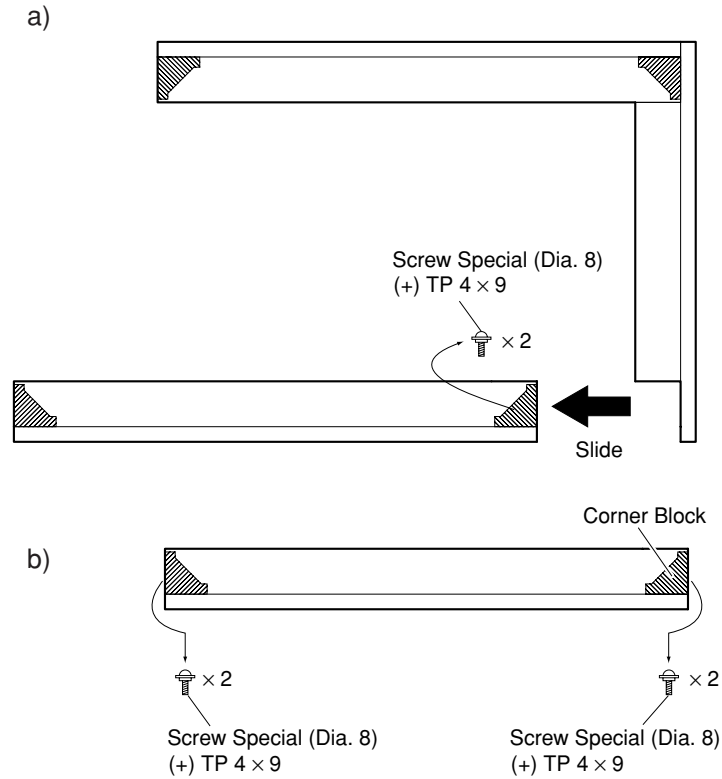
NOTE : When replacing the Frame Sub-Assy Top and Bottom, fix the original corner
block to the new part.

- **REMOVAL OF ANODE-CAP**

NOTE : After removing the anode, short circuit the anode of the picture tube and
the anode cap to the metal chassis, CRT shield or carbon paint on the
CRT.

- **REMOVING PROCEDURES**

ⓐ

ⓐ

① **Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.**

ⓑ

ⓑ

② **Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.**

ⓒ

Anode button

③ **When one side of the rubber cap is separated from the anode button, the anode-cap
can be removed by turning up the rubber cap and pulling it up in the direction of the
arrow ⓒ.**

- **HOW TO HANDLE AN ANODE-CAP**

① **Do not damage the surface of anode-caps with sharp shaped objects.**
② **Do not press the rubber too hard so as not to damage the inside of anode-cap.
A metal fitting called the shatter-hook terminal is built into the rubber.**
③ **Do not turn the foot of rubber over too hard.
The shatter-hook terminal will stick out or damage the rubber.**
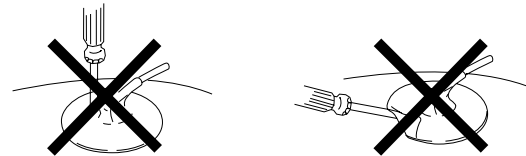
SECTION 3
SERVICE JIG

3-1. JIGS REQUIRED FOR SERVICING

REF NO.	DESCRIPTION	PART NO.	REMARK
J-1	TOOL (20P), SERVICE	3-702-763-01	For A to V board extension
J-2	TOOL (40P), SERVICE	3-702-764-01	For A to E board extension
J-3	TOOL (50P-A), SERVICE	3-702-765-01	For A to B3 board extension
J-4	TOOL (50P-J), SERVICE	3-702-766-01	For A to J board extension For D to D1 board extension

J-1

J-2

J-3

J-4
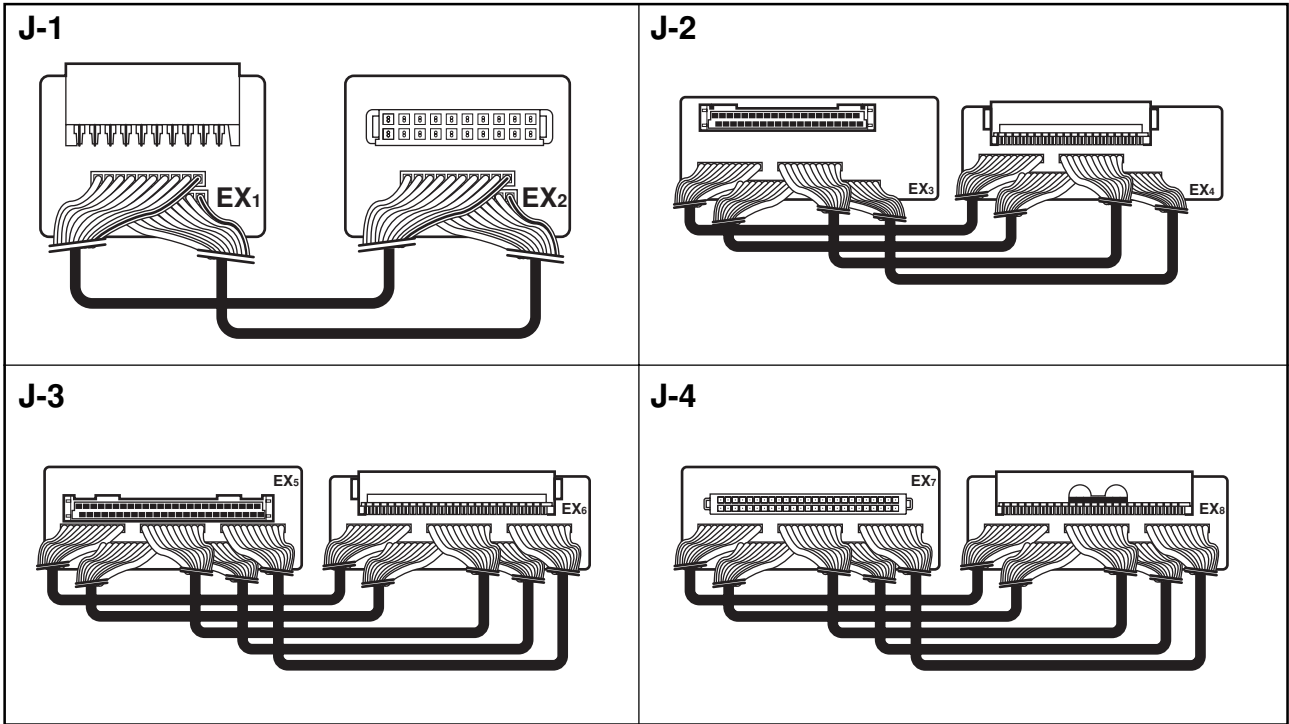
SECTION 4
CIRCUIT BOARDS LOCATION
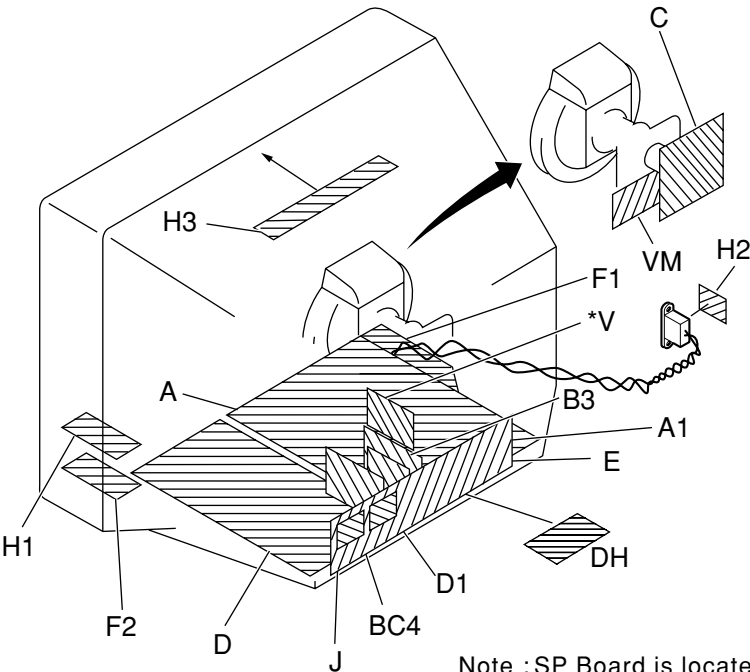
Note : SP Board is located at the Duct, speaker
*: V Board (except KV-ES38N90)

SECTION 5
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control .... normal
BRIGHTNESS control .... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

    1. Color-bar/Pattern Generator

    2. Degausser

    3. Oscilloscope

....

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

5-1. BEAM LANDING

1. Input a white signal with the pattern generator.

   Contrast ⎫
   Brightness ⎭ normal

2. Position neck assy as shown in Fig 5-1.

3. Set the pattern generator raster signal to a green raster.

4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side. (See Figures 5-1 through 5-3.)

5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 5-2.)

6. Switch the raster signal to blue, then to green and verify the condition.

7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.

8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Figure 5-4.)

Fig. 5-2

Fig. 5-3

Purity control corrects this area.

Disk magnets or rotatable disk magnets correct these areas (a-d).

Deflection yoke positioning corrects these areas.

Fig. 5-4

Neck assy

Behind the G2 edge

G1   G2   G3
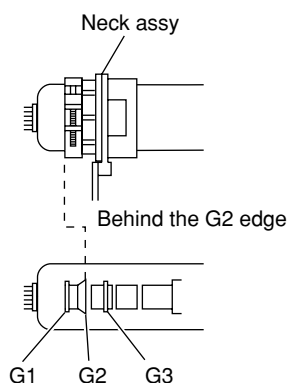
Fig. 5-1
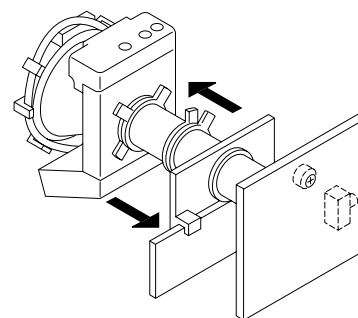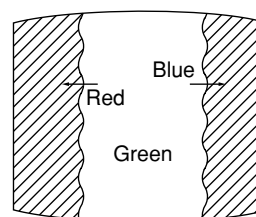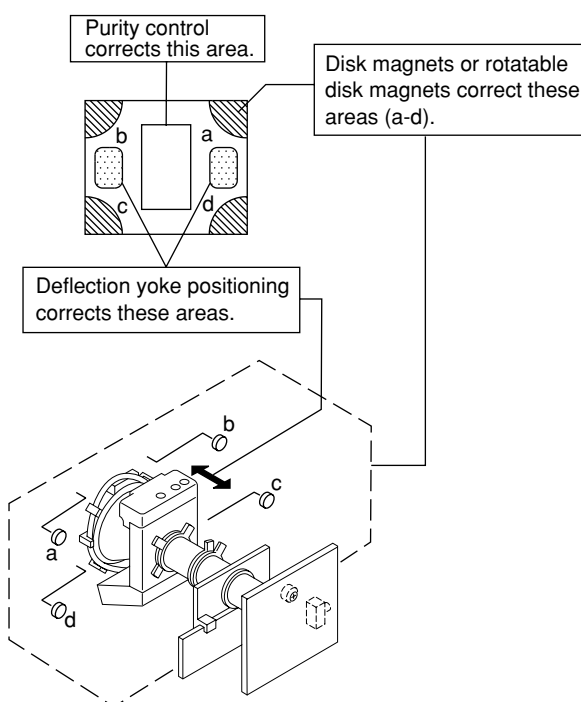
5-2. CONVERGENCE ADJUSTMENT

Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Set the Picture Mode to "STANDARD".
- Cross hatch / Dot pattern.

(1) Horizontal and Vertical Static Convergence
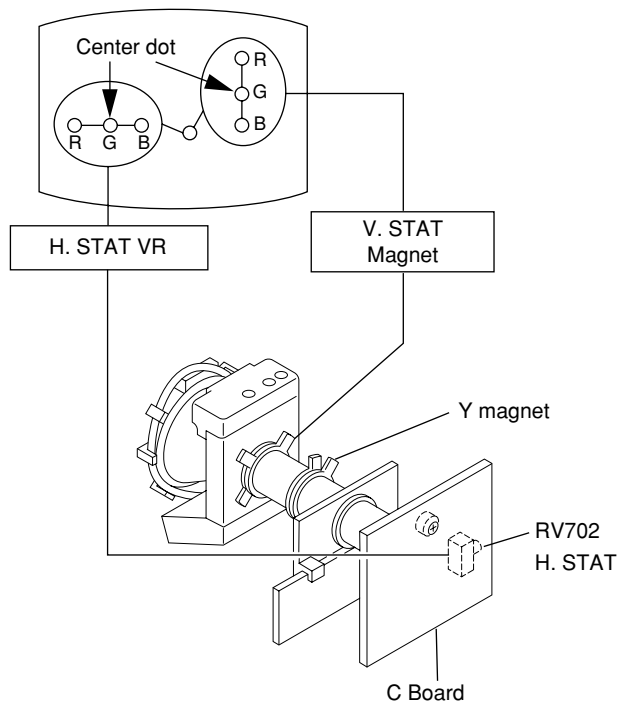
1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue dots are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.
3. Adjust Horizontal Trapezoid with "DAC 04 HTR" in Service Mode to make H-Trapezoid distortion best.
4. If the H.STAT variable resistor cannot bring the red, green and blue dots together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)

① V. STAT
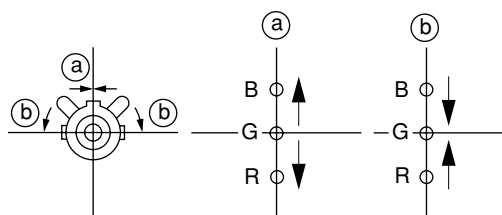
② H. STAT VR
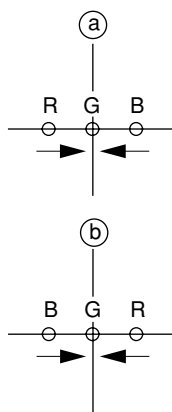
③
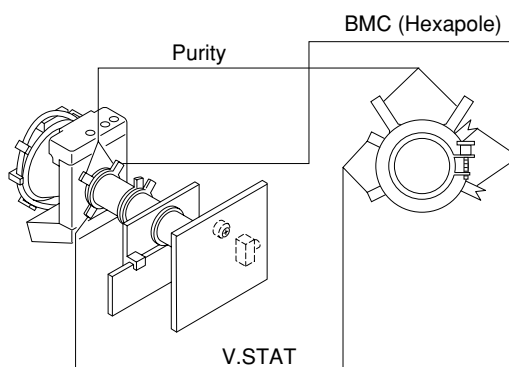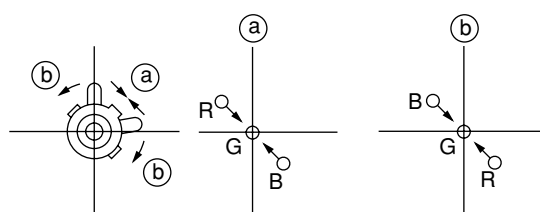
④ BMC (Hexapole) Magnet.

If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.
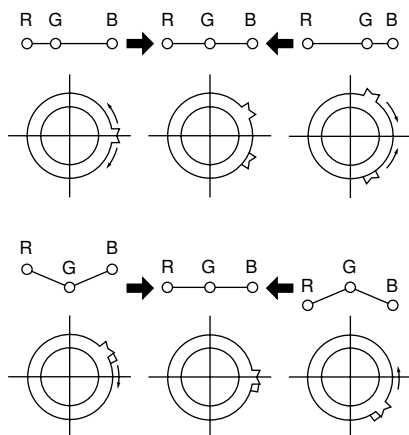
⑤ Y separation axis correction magnet adjustment.

1. Receive the cross-hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD] .

2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.
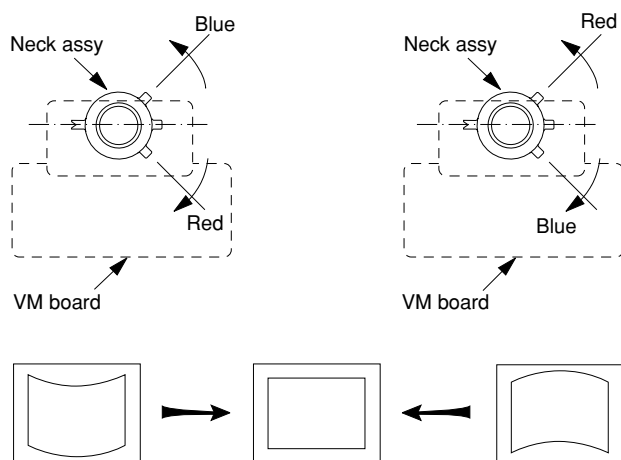
Note

1. The Red and Blue magnets should be equally far from the horizontal center line.

2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

(2) Dynamic Convergence Adjustment

Preparation:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence

- Set the PICTURE and BRIGHTNESS to normal.

1. Adjust TLH. (TLH correction piece)

① Receive the dot/hatch pattern signal and adjust picture quality by the menu.

② Correct horizontal mis-convergence of red and blue of both sides on the X axis.

When red is outside insert BMC magnet to right side (THL+) views from DY neck. And when blue is outside, insert it to left side (THL–) and take both sides.
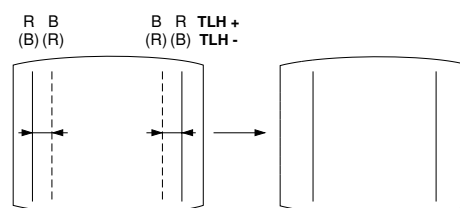
2. Adjust V-TILT-TLV.

Correct the vertical mis-convergence of red and blue of vertically sides on the Y axis.

3. Adjust YCH.

Adjust horizontal mis-convergence of red and blue of vertically sides on the Y axis. Mentioned above steps 2 to 4 are adjusting respectively perform minuteness tracking.
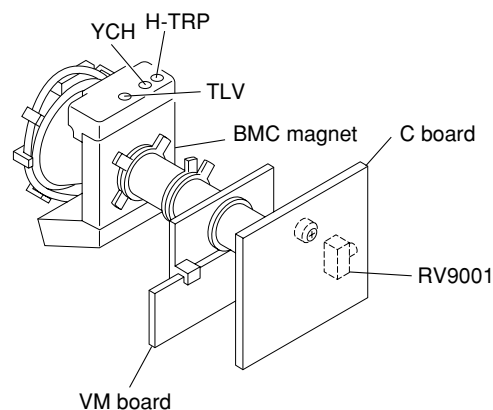
(3) Screen-corner Convergence

a-d : screen-corner
misconvergence
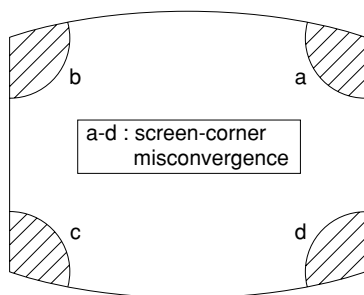
Fix a Permalloy assy corresponding to the misconverged areas.

Permalloy assembly
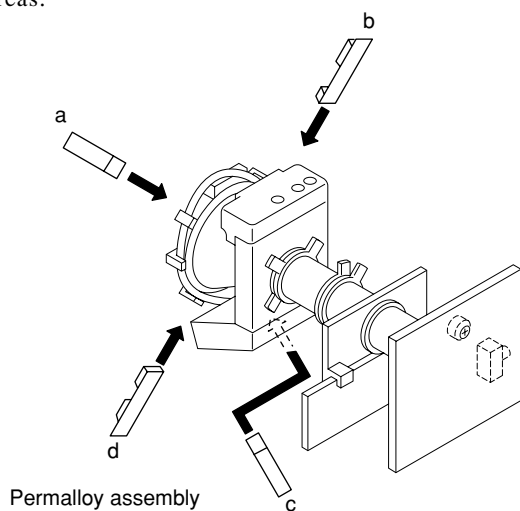
5-3. FOCUS ADJUSTMENT
Note
Focus adjustment should be completed before W/B adjustment.

(1) Receive digital monoscope pattern.
(2) Set "A/V CONTROL" to "STANDARD".
(3) Adjust FOCUS VR so that the center of the screen becomes justfocus.
(4) Change the receiving signal to white pattern and blue back.
(5) Confirm MAGENTA RING should not be over the limit sample. In case MAGENTA RING is over the limit sample, adjust FOCUS VR to take tracking of MAGENTA RING and FOCUS.

Focus
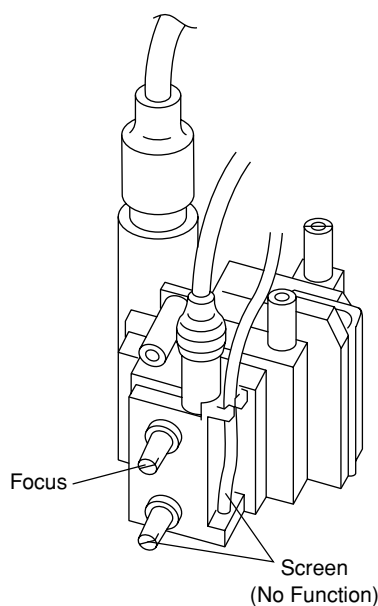
Screen
(No Function)

FLYBACK TRANSFORMER (T6803)

5-4. NECK ASSY TWIST ADJUSTMENT
(1) Receive dot/hatch pattern.
(2) Turn FOCUS VR fully counter-clockwise.
(3) Confirm the dot shape at the screen center. (Fig. 5-4)
(4) Resume FOCUS VR.
Note
In case of turning NECK ASSY, loosen the screw 3 turns. Do not move the position.

OK

Turn NECK ASSY clockwise.

Turn NECK ASSY counter clockwise.
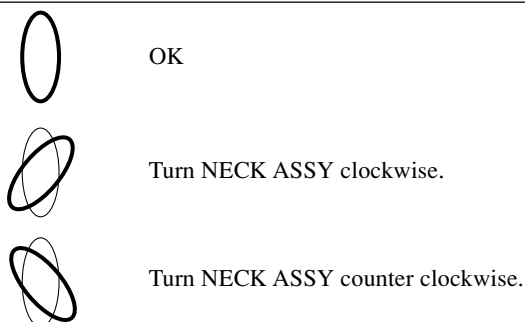
Fig. 5-4

5-5. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

1) Set the PICTURE and BRIGHTNESS to normal.

2) Put to VIDEO input mode without signals.

3) Connect R, G and B of the C board cathode to the oscilloscope.

4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.

5) Whilst watching the picture, adjust the screen VR (RV9002) located on the C board to the point just before the flyback return lines disappear (to the point before cut-off)

170 V ± 2 (VDC)

0 V
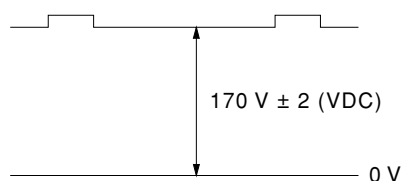
2. WHITE BALANCE ADJUSTMENT

1) Set to Service Mode (Refer Section 6-1: ADJUSTMENTS WITH COMMANDER).

2) Input white raster signal.

3) Set the following condition.
   PICTURE minimum, BRIGHTNESS 50%

4) Select GCT (WHB 7) and BCT (WHB 8) with 1 and 4, and adjust the level with 3 and 6 for the best white balance.

5) Set the PICTURE to maximum.

6) Select GDR (WHB 4) and BDR (WHB 5) with 1 and 4, and adjust the level with 3 and 6 for the best white balance.

7) Write into the memory by pressing MUTING then 0.

3. SUB PICTURE BRIGHTNESS ADJUSTMENT

1) Tune RF PAL white signal at program No. 1 and No. 2.

2) Select "TWIN PICTURE" mode.

3) Receive different RF PAL white signals in MAIN and Sub picture.

4) Adjust RV3300 on A PWB, so that the output from the 17 pin and 20 pin of the CN1180 becomes within the spec.

CVBS 1
17 pin

MAIN

A

CVBS 2
20 pin

SUB

B

Spec: |A - B| ≤ ± 20mV
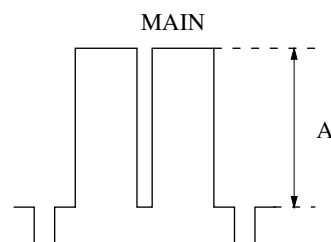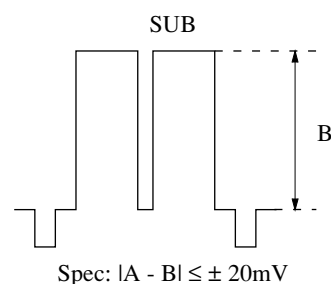
SECTION 6
CIRCUIT ADJUSTMENTS

6-1. ADJUSTMENTS WITH COMMANDER

Service adjustments are made with the RM-916 that comes with this unit.

a. ENTERING SERVICE MODE

This operation sequence puts the unit into service mode.

$$\rightarrow \boxed{\text{DISPLAY}} \rightarrow \boxed{5} \rightarrow \boxed{\text{VOL (+)}} \rightarrow \boxed{\text{POWER}}$$

The screen display is :
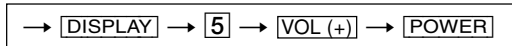
```
     Device Name    Item Name          Marking of virgin NVM

            Item No      Data              Mode

       GEO    00    VSZ   29    ■    SERVICE   50

        0    035Q   5.8M  59   FF     000A

                                           PAL,SECAM :50
             Suffix No
             (OEM Code)                     NTSC     :60

            Software version  Total Power-On time (hours)
```
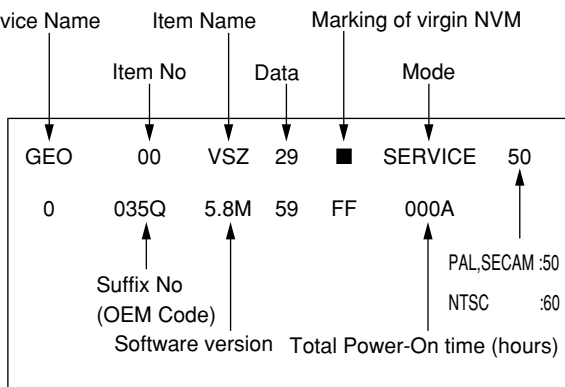
b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press $\boxed{\text{POWER}}$ button on the commander), then press $\boxed{\text{POWER}}$ button again, hereupon it becomes TV mode.

c. METHOD OF WRITE INTO MEMORY

1) Set to Service Mode.
2) Press $\boxed{1}$ (UP) and $\boxed{4}$ (DOWN), select an item of adjustment.
3) Press $\boxed{\text{MUTING}}$ button and it will indicate WRITE on the screen.
4) Press $\boxed{0}$ button to write into memory.

d. MEMORY WRITE CONFIRMATION METHOD

1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again to confirm adjustments were made.

The screen display is :

$\boxed{1}$, $\boxed{4}$	Select the adjustment item.
↓	
$\boxed{3}$, $\boxed{6}$	Raise/lower the data value.
↓	
$\boxed{\text{MUTING}}$	Writes.
↓	
$\boxed{0}$	Executes the writing.
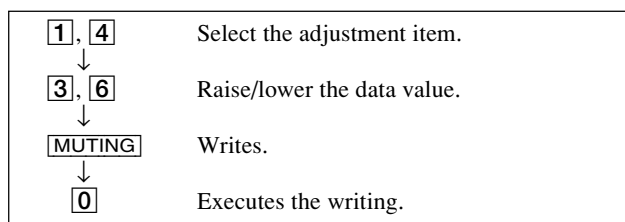
$\boxed{7}$, $\boxed{0}$	All the data becomes the values in memory.
$\boxed{8}$, $\boxed{0}$	All user control goes to the standard state.
$\boxed{5}$, $\boxed{0}$	Service data initialization (Be sure not to use usually.)
$\boxed{\text{DISPLAY}}$, $\boxed{0}$	Write 50Hz adjustment data to 60Hz, or vice versa.
$\boxed{2}$, $\boxed{0}$	Write 50Hz adjustment data to 60Hz, or vice versa.
$\boxed{\text{Cursor +/-}}$	Copy and write all data. example:

```
       GEO       00      VSZ
                  ↕
       DAC       00      HCT
```

6-2. ADJUSTMENT METHOD

Item Number 00 of device GEO

This explanation uses V-size as an example.

1. Select "GEO 00 VSZ" with the $\boxed{1}$ and $\boxed{4}$ buttons.
2. Raise/lower the data with the $\boxed{3}$ and $\boxed{6}$ buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the $\boxed{\text{MUTING}}$ button. (The display changes to WRITE.)
5. Execute the writing with the $\boxed{0}$ button. (The WRITE display will be changed to red color while excuting, and back to SERVICE.)

```
GEO    00    HPS    29   SERVICE   50 ◄── GREEN
 0    035Q   5.8M   59 FF   0    000A     Adjusted with ③
                                          and ⑥ buttons.
```

```
GEO    00    HPS    1F   WRITE    50 ◄── GREEN
 0    035Q   5.8M   59 FF   0    000A
```
Write with $\boxed{\text{MUTING}}$
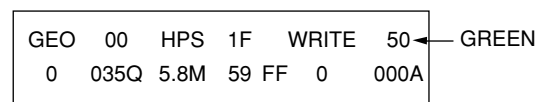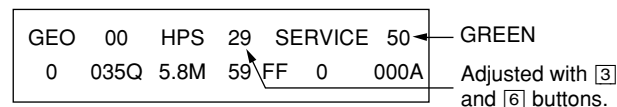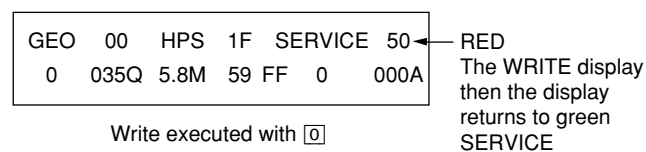
```
GEO    00    HPS    1F   SERVICE   50 ◄── RED
 0    035Q   5.8M   59 FF   0    000A    The WRITE display
                                         then the display
                                         returns to green
                                         SERVICE
```
Write executed with $\boxed{0}$

Use the same method for all Items. Use $\boxed{1}$ and $\boxed{4}$ to select the adjustment item, use $\boxed{3}$ and $\boxed{6}$ to adjust, write with $\boxed{\text{MUTING}}$, then execute the write with $\boxed{0}$.

Note : 1. In $\boxed{\text{WRITE}}$, the data for all items are written into memory together.
2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.
3. Additional function to skip category (device) to category (device).
   example:
```
       GEO    00    VSZ
              ↕
       DAC    00    XXX
```
The buttons for the function above should be ⬆ and ⬇.

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	PAL 50 DRC 1250	DRC 1250V	PinP	PinPV	INDEX	TWIN	DRC 100	DRC 100V	NTSC 60 DRC 1250	60 VC	PinP	PinPV	INDEX	TWIN	DRC 100	DRC 100V	Device Name
GEO	00	VSZ	21	3F	V SIZE	FF/4P*50/60*VC/NC, TW/IX*50/60	1B	21	1B	21	20	20	1C	20	1D	21	1D	21	20	23	1E	23	CXA2100AQ
	01	VPS	27	3F	V POSITION	FF/4P*50/60*VC/NC, TW/IX*50/60	25	24	25	24	23	25	23	23	27	27	27	27	25	29	25	25	
	02	VLN	5	0F	V LINESRITY	FF/R4/PR*50/60*VC/NC	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	
	03	SCO	0A	0F	S CORRECTION	FF/R4/PR*50/60*VC/NC	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	07	
	04	HSZ	1E	3F	H SIZE	FF/4P*50/60*VC/NC, TW/IX*50/60	26	27	26	27	1E	1E	27	27	24	24	24	24	23	1F	25	25	
	05	HPS	2F	3F	H POSITION	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	38	36	38	35	3B	3C	38	36	30	2F	30	30	31	36	31	2F	
	06	DVH	5	0F	H POSITION OFFSET FOR DVD	50/60Hz (DVD)	06	06	06	06			06		07	07	07	07			07	07	
	07	PAP	28	3F	PIN AMP	FF/R4/PR*50/60*VC/NC	21	1F	21	1C	21	21	21	21	1F	20	1F	1F	1F	1F	23	1E	
	08	UPN	25	3F	UPPER CONER PIN	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	1E	1D	1E	1D	1D	1E	1D	1D	1C	23	1C	1E	1C	1C	1B	14	
	09	LPN	23	3F	LOWER CONER PIN	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	1C	16	1C	16	1B	1C	1D	1D	1B	1A	1B	1A	1B	1B	1E	19	
	0A	TRZ	0C	0F	TRAPEZIUM	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	08	08	08	07	07	09	05	05	08	08	08	08	07	09	04	05	
	0B	AGL	0A	0F	AFC ANGLE	FF/R4/PR*50/60*VC/NC	07	07	06	07	06	06	06	06	07	07	06	07	06	06	07	06	
	0C	BOW	6	0F	AFC BOW	FF/R4/PR*50/60*VC/NC	08	07	07	06	07	07	07	07	07	07	08	07	08	08	08	08	
	0D	LBL	12	3F	LEFT H BLANKING	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	11	11	11	11	11	11	11	11	1C	1C	1C	1C	1C	1C	1C	1C	
	0E	RBL	2C	3F	RIGHT H BLANKING	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	2C	2C	2C	2C	2C	2C	2C	2C	23	23	23	23	23	23	23	23	
	0F	MPN	0	3	MIDDLE PIN DISTORTION COMPENSATION	50/60*VC/NC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	10	UVL	0	0F	UPPER LINEARITY	50/60Hz	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	11	LVL	0	0F	LOWER LINEARITY	50/60Hz	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	12	HCP	0	3	HORIZONTAL HIGH VOLTAGE COMPENSATION	50/60*VC/NC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	13	VCP	1	3	VERTICAL HIGH VOLTAGE COMPENSATION	50/60*VC/NC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	14	VAS	2F	3F	V ASPECT	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	2F	2E	2F	2E	2F	30	2F	2E	2F	31	2F	31	2F	2E	2F	30	
	15	VSC	1F	3F	V SCROLL	FF/R4/PR*50/60*VC/NC, TW/IX*50/60	22	22	22	22	22	24	22	22	22	22	22	22	22	23	22	22	
	16	USC	0	1	UNDER-SCAN MODE ON/OFF	50/60*VC/NC																	
	17	VBW	0	3	V BLANKING WIDTH CONTROL	FF/R4/PR*50/60*VC/NC	00	03	00	03	00	00	00	03	00	03	00	03	00	00	00	03	
	18	AT1	2	3	AKB REFERENCE TIMING	FF/R4/PR*50/60*VC/NC	02	03	02	03	02	02	02	03	02	03	02	03	02	02	02	03	
	19	CPY	0	1	COPY THE GEO DATA TO ALL 50/60HZ NVM AREA																		

Adjustment Item Table

TVG	Functionality		Initial	Range	Function	Table and Note	PAL 50								Eco Mode				NTSC 60								Device Name
Category	No.	Name					DRC 1250	DRC 1250V	PinP	PinPV	INDEX	TWIN	DRC 100	DRC 100V	Eco On NC	Eco Off NC	Eco On VC	Eco Off VC	DRC 1250	60VC	PinP	PinPV	INDEX	TWIN	DRC 100	DRC 100V	
DAC	00	HCT	33	FF	H CENTER	50/60Hz	30	30	30	30	30	30	30	30					6B	6B	6B	6B	6B	6B	6B	6B	MB88141
	01	HLN	27	3F	H LINEARITY	FF/4P*50/60	30	30	30	30	30	30	30	30					33	33	33	33	33	33	33	33	
	02	MDP	26	3F	MIDDLE PIN	FF/4P*50/60	1A	1A	1A	1A	1A	1A	1A	1A					1A	1A	1A	1A	1A	1A	1A	1A	
	03	CCP	37	3F	LOWER CONER PIN	FF/4P*50/60	1F	1F	1F	1F	1F	1F	1F	1F					1F	1F	1F	1F	1F	1F	1F	1F	
	04	HTR	26	3F	HORIZONTAL TRAPEZIUM	FF/4P*50/60	1F	1F	1F	1F	1F	1F	1F	1F					1F	1F	1F	1F	1F	1F	1F	1F	
	05	DF	01	1	DF ON/OFF SWITCH	FF/4P*50/60	01	01	01	01	01	01	01	01					01	01	01	01	01	01	01	01	
	06	DPH	1F	3F	DF PHASE	FF/4P*50/60	27	27	27	27	27	27	27	27					27	27	27	27	27	27	27	27	
	07	QPH	19	3F	QP PHASE	FF/4P*50/60	15	15	15	15	15	15	15	15					15	15	15	15	15	15	15	15	
	08	QAC	23	3F	QP AMPLITUDE	FF/4P*50/60	23	23	23	23	23	23	23	23					23	23	23	23	23	23	23	23	
	09	QDC	20	3F	QP DC LEVEL	FF/4P*50/60	20	20	20	20	20	20	20	20					20	20	20	20	20	20	20	20	
	0A	QDV	1F	3F	QP V MODULATION	FF/4P*50/60	1D	1D	1D	1D	1D	1D	22	22					1E	1E	1E	1E	1E	1E	24	24	
	0B	QAV	1A	3F	QP AMPLITUDE MODULATION	FF/4P*50/60	3F	3F	3F	3F	3F	3F	3F	3F					3F	3F	3F	3F	3F	3F	3F	3F	
	0C	ABC	0	FF	ABL D/A CONTROL	ECO on/off*VC/NC									00	00	7E	7E									
	0D	CPY	0	1	COPY THE GEO DATA TO ALL 50/60HZ NVM AREA																						

TVG	Functionality		Initial	Range	Function	Table and Note	Common	Device Name
Category	No.	Name						
WHB	00	CBO	7	0F	DC OFFSET CANCELLER FOR CB1		0A	CXA2100AQ
	01	CRO	7	0F	DC OFFSET CANCELLER FOR CR1		0A	
	02	SBR	18	3F	SUB BRIGHTNESS CONTROL		22	
	03	RDR	29	3F	R DRIVE		29	
	04	GDR	25	3F	G DRIVE		25	
	05	BDR	26	3F	B DRIVE		20	
	06	RCT	29	3F	R CUTOFF		24	
	07	GCT	12	3F	G CUTOFF		07	
	08	BCT	31	3F	B CUTOFF		2F	
	09	SBO	29	3F	SUB BRIGHTNESS OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1C	
	0A	RDO	1F	3F	R DRIVE OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1F	
	0B	GDO	1A	3F	G DRIVE OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1B	
	0C	BDO	1A	3F	B DRIVE OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1B	
	0D	RCO	1F	3F	R CUTOFF OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1F	
	0E	GCO	1E	3F	G CUTOFF OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1F	
	0F	BCO	15	3F	B CUTOFF OFFSET	EXCEPT PICTURE MODE, DYNAMIC	1A	

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	Twin	Index	Eco On NC	Eco Off NC	Eco On VC	Eco Off VC	50 TV	50 Vid-eo	50 DVD	60 TV	60 Vid-eo	60 DVD	Dynamic	Standard Drama	Hi-Fin/Soft	Personal	Device Name
SAJ	00	PIC	3F	3F	PICTURE CONTROL	EXCEPT PICTURE MODE, PERSONAL														3F	32	28		CXA2100AQ
	01	BRT	1F	3F	BRIGHTNESS CONTROL	EXCEPT PICTURE MODE, PERSONAL														23	1F	1B		
	02	COL	27	3F	COLOR CONTROL	EXCEPT PICTURE MODE, PERSONAL														32	23	23		
	03	HUE	1F	3F	HUE CONTROL	EXCEPT PICTURE MODE, PERSONAL														1F	1F	1F		
	04	SHP	24	3F	SHARPNESS CONTROL	EXCEPT PICTURE MODE, PERSONAL														22	1F	1D		
	05	VML	3	3	VM LEVEL	PICTURE MODE														03	03	01	03	
	06	DYC	1	1	DYNAMIC COLOR ON/OFF	PICTURE MODE														01	01	00	01	
	07	CTM	0	1	COLOR TEMPERATURE FOR DYNAMIC COLOR	PICTURE MODE														00	00	00	00	
	08	CAX	2	3	COLOR MATRIX SPECIFICATION	50/60Hz								02	02	02	00	00	00					
	09	GMA	3	3	GAMMA CORRECTION	PICTURE MODE														02	02	03	02	
	0A	DCT	1	3	DC TRANSMISSION CONTROL	PICTURE MODE														01	01	00	01	
	0B	DPL	1	3	AUTO PEDESTAL LEVEL CONTROL	PICTURE MODE														02	01	00	01	
	0C	ABM	0	3	ABL MODE CONTROL	PICTURE MODE														01	00	00	00	
	0D	ABT	0	3	ABL CURRENT DETECTION VTH CONTROL	Eco on/off*VC/NC				02	00	02	00											
	0E	CLO	9	0F	COLOR OFFSET	50/60*TV/Video								09	08		09	09						
	0F	CLW	3	7	COLOR STEP WIDTH TO THE CHANGE OF S/N		03																	
	10	HUO	9	0F	HUE OFFSET	50/60*TV/Video								08	08		09	09						
	11	SHO	7	1F	SHARPNESS OFFSET	50/60*TV/Video/DVD								14	17	0F	0C	0F	0F					
	12	SHW	1	7	SHARPNESS STEP WIDTH TO THE CHANGE OF S/N		01																	
	13	PIO	5	7	PICTURE OFFSET FOR TWIN/INDEX	Twin/Index		07	07															
	14	BRO	7	0F	BRIGHTNESS OFFSET	Eco on/off*VC/NC				07	07	07	07											

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	50 TV	50 Video	50 DVD	60 TV	60 Video	60 DVD	Dynamic	Standar/Drama	Hi-Fine Soft	Personal	Device Name
JGL	00	PON	1	1	RGB AND AKB REFERENCE PULSE OUTPUT ON/OFF		01											CXA2100AQ
	01	RGB	7	7	RGB OUTPUT SELECTION		07											
	02	AGG	0	3	AGING MODE SELECTION		00											
	03	DPS	0	1	Y/C DELAY LINE PASS MODE SWITCH		00											
	04	BBT	3	3	RGB BOTTOM LIMITTER CONTROL		03											
	05	LML	0	3	RGB AMPLITUDE LIMITTER CONTROL		00											
	06	PAB	0F	0F	DC LEVEL FOR PEAK ABL		0F											
	07	SCO	0C	0F	SUB PICTURE CONTROL		08											
	08	LV2	7	0F	RGB LEVEL FOR RGB2		07											
	09	SF0	1	1	SHARPNESS CIRCUIT F0	50/60*TV/Video/DVD		01	01	01	01	01	01					
	0A	PRO	0	3	PRE/OVER-SHOOT RATIO CONTROL	50/60*TV/Video/DVD		00	03	03	03	03	03					
	0B	LTI	2	3	LUMINANCE TRANSIENT IMPROVEMENT	PICTURE MODE								02	02	00	02	
	0C	CTI	1	3	CHROMINANCE TRANSIENT IMPROVEMENT	PICTURE MODE								01	01	00	01	

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	2D Comb	3D Comb	S-Input	Others	50 TV	50 Video	50 DVD	60 TV	60 Video	60 DVD	Device Name
YCT	00	TNT	1F	3F	TINT ADJUSMENT FOR NTSC	TV/Video						24	1F		24	1F		CXA2123Q
	01	PNG	0	1	PAL/NTSC GATE WIDTH		01											
	02	PNI	0	1	PAL/NTSC SENSITIVITY SW		00											
	03	SCL	7	0F	SUB COLOR CONTROL	50/60*TV/Video						05	07		04	07		
	04	SCT	8	0F	SUB CONTRAST CONTROL	50/60*TV/Video						08	07		07	07		
	05	SF0	2	3	SHARPNESS CENTER FREQUENCY CHANGING		02											
	06	SEQ	3	3	SHARPNESS EQUALIZER CHARACTERISTIC		03											
	07	SHG	5	0F	SHARPNESS GAIN CONTROL	50/60*TV/Video/DVD						05	05	07	06	06	07	
	08	YOL	1F	3F	Y-OUTPUT LEVEL CONTROL		1F											
	09	BSP	0	3	BLACK STRETCH START POINT CHANGING		00											
	0A	COL	1F	3F	CB/CR OUTPUT LEVEL CONTROL		1A											
	0B	DCR	0	3	DC RESTORATION RATIO ADJUSTMENT		00											
	0C	BF0	1	3	BPF/TQF F0 ADJUSTMENT		01											
	0D	BFQ	2	3	BPF/TQF Q ADJUSTMENT		02											
	0E	FSW	1	1	BPF/TQF SWITCH		01											
	0F	SDT	1	1	SECAM DOUBLE TRAP SWITCH		01											
	10	LPF	1	1	Y/CB/CR LPF SWITCH		01											
	11	YDL	6	0F	Y-DL TIME ADJUSMENT	2D Comb/3D comb/S-input/othes		06	05	03	05							
	12	CMT	0	1	CB/CR OUTPUT MUTE SWITCH		00											
	13	BO1	7	0F	CB OFFSET1 ADJUSTMENT (MAIN ROUTE)		07											
	14	RO1	7	0F	CB OFFSET1 ADJUSTMENT		07											
	15	CDF	0	7	V COUNT DOWN FREQUENCY SWITCH	forced 50Hz for no signal	00											
	16	CDM	0	3	V COUNT DOWN JUDGE SWITCH		00											
	17	AFC	0	3	AFC SENSITIVITY SWITCH	TV/Video/DVD						00	00		00	00		
	18	MVM	0	1	MACROVISION + AFC MASK		00											
	19	SRY	7	0F	SECAM R-Y BLACK ADJUSTMENT		07											
	1A	SBY	1	0F	SECAM B-Y BLACK ADJUSTMENT		01											
	1B	BEL	2	3	SECAM BELL/HPF SWITCHING		02											
	1C	BLF	0	1	BELL F0 ADJUSTMENT		00											
	1D	SVI	0	1	SECAM V-ID SWITCH		00											
	1E	SGP	0	3	SECAM GATE POSITION ADJUSTMENT		00											
	1F	SID	1	1	SECAM SENSITIVITY SWITCH	except SECAM	01											
	20	SIH	0	1	SECAM INHIBITION SWITCH		00											
	21	STP	0	1	Y BLACK LEVEL SETUP FOR PAL PLUS		00											
	22	HVC	2	3	H-VCO TEMPERATURE CHARACTER CANCELLING		02											
	23	3NR	1	1	3D NR OPERATION ON/OFF		01											
	24	BW6	1	1	3D NR FOR 60HZ NON-BUST SIGNAL ON/OFF		01											
	25	WSH	0	3	SHARPNESS GAIN STEP FOR NOISE REDUCTION		00											
	26	WCO	0	3	DC RESTORATION RATIO ADJUSTMENT		00											

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	COLOR MODE S-Input	COLOR MODE SECAM	COLOR MODE NTSC	COLOR MODE PAL	50 TV	50 Video	60 TV	60 Video	DVD	Device Name
SYC	00	TNT	1F	3F	TINT ADJUSMENT FOR NTSC	TV/Video						21	20	21	20		CXA2123Q
	01	PNG	0	1	PAL/NTSC GATE WIDTH		01										
	02	PNI	0	1	PAL/NTSC SENSITIVITY SW		00										
	03	SCL	7	0F	SUB COLOR CONTROL	50/60*TV/Video						06	07	06	07		
	04	SCT	7	0F	SUB CONTRAST CONTROL	50/60*TV/Video						08	08	07	07		
	05	SF0	2	3	SHARPNESS CENTER FREQUENCY CHANGING		02										
	06	SEQ	3	3	SHARPNESS EQUALIZER CHARACTERISTIC		03										
	07	SHG	7	0F	SHARPNESS GAIN CONTROL		07										
	08	YOL	1F	3F	Y-OUTPUT LEVEL CONTROL		1F										
	09	BSP	0	3	BLACK STRETCH START POINT CHANGING		00										
	0A	COL	1F	3F	CB/CR OUTPUT LEVEL CONTROL		3C										
	0B	DCR	0	3	DC RESTORATION RATIO ADJUSTMENT		00										
	0C	BF0	1	3	BPF/TQF F0 ADJUSTMENT		01										
	0D	BFQ	2	3	BPF/TQF Q ADJUSTMENT		02										
	0E	FSW	1	1	BPF/TQF SWITCH		01										
	0F	SDT	1	1	SECAM DOUBLE TRAP SWITCH		01										
	10	LPF	1	1	Y/CB/CR LPF SWITCH		01										
	11	YDL	3	0F	Y-DL TIME ADJUSMENT	PAL/NTSC/SECAM/S-Input		05	03	02	03						
	12	NCM	1	1	1-H ADDITION SWITCH		01										
	13	CMT	0	1	CB/CR OUTPUT MUTE SWITCH		00										
	14	BO1	7	0F	CB OFFSET1 ADJUSTMENT (MAIN ROUTE)		07										
	15	RO1	7	0F	CB OFFSET1 ADJUSTMENT		07										
	16	CDF	0	7	V COUNT DOWN FREQUENCY SWITCH		00										
	17	CDM	0	3	V COUNT DOWN JUDGE SWITCH		00										
	18	AFC	0	3	AFC SENSITIVITY SWITCH	(TV)/Video/DVD							00		00	00	
	19	MVM	0	1	MACROVISION + AFC MASK		00										
	1A	SRY	7	0F	SECAM R-Y BLACK ADJUSTMENT		07										
	1B	SBY	1	0F	SECAM B-Y BLACK ADJUSTMENT		01										
	1C	BEL	2	3	SECAM BELL/HPF SWITCHING		02										
	1D	BLF	0	1	BELL F0 ADJUSTMENT		00										
	1E	SVI	0	1	SECAM V-ID SWITCH		00										
	1F	SGP	0	3	SECAM GATE POSITION ADJUSTMENT		00										
	20	SID	1	1	SECAM SENSITIVITY SWITCH	except SECAM	01										
	21	SIH	0	1	SECAM INHIBITION SWITCH		00										
	22	STP	0	1	Y BLACK LEVEL SETUP FOR PAL PLUS		00										
	23	HVC	2	3	H-VCO TEMPERATURE CHARACTER CANCELLING		02										

Adjustment Item Table

TVG	Functionality		Initial	Range	Function	Common	Device Name
Category	No.	Name					
MSP	00	WST	15	FF	W/G STEREO THRESHOLD	15	MSP3415D
	01	WBT	EA	FF	W/G BILINGAUAL THRESHOLD	EA	
	02	WLL	5	FF	W/G MONOAURAL THRESHOLD	05	
	03	WAC	1	0F	W/G AGREEMENT COUNT	01	
	04	WDL	30	FF	W/G SEARCH DELAY	30	
	05	NDL	20	FF	NICAM SEARCH DELAY	20	
	06	SDL	10	FF	STEREO STATUS READ DELAY	10	
	07	AGC	1	1	AGC SWITCH AUTO/CONSTANT	01	
	08	REL	28	3F	AGC GAIN AT CONSTANT MODE	28	
	09	CRM	0	1	CARRIER MUTING ON/OFF	00	
	0A	ACO	1	1	AUDIO CLOCK ON/OFF	01	
	0B	FP	1B	7F	FM PRESCALE FOR NON-M SYSTEM	1B	
	0C	FPM	32	7F	FM PRESCALE FOR M SYSTEM	32	
	0D	FH	2D	7F	FM PRESCALE FOR HDEV	2D	
	0E	FHM	65	7F	FM PRESCALE FOR HDEV AND M	65	
	0F	WGP	2A	7F	W/G PRESCALE	2A	
	10	NIP	6D	7F	NICAM PRESCALE	6D	
	11	ERR	50	FF	AUTO FM SWITCH THRESHOLD	50	
	12	VOL	6D	FF	LOUDSPEAKER GAIN 0700H TO 07FFH	6D	

TVG	Functionality		Initial	Range	Function	Table and Note	Common	Initial Value (Detailed)				Device Name
Category	No.	Name						Dynamic	Standard/Drama	Hi-Fine/Soft	Personel	
AP	00	BAS	0A	0F	BASE CONTROL	EXCEPT PESONAL		0B	08	07		TDA7315
	01	TRE	0A	0F	TREBLE CONTROL	EXCEPT PESONAL		0B	09	07		
	02	LDN	1	1	LOUDNESS CONTROL		01					

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	Twin	TV	Video	Dynamic	Standard/Drama	Hi-Fine/Soft	Personal	Device Name
LTI	00	LDH	1	1	HISTOGRAM SEGMENT SELECTION		01								
	01	CFS	1	1	COUNTER FILTER SELECTION		01								
	02	WLB	0	1	LETTERBOX WINDOW SWITCH		00								
	03	VDC	1	1	VIDEO DEPENDENT CORING	PICTURE MODE					01	01	01	01	
	04	DEM	0	1	DEMONSTRATION MODE		00								
	05	CDP	4	07	LUMINANCE DELAY		04								
	06	OSP	0	1	OVERRULE SMART PEAKING		00								
	07	WPO	0	1	WHITE POINT STRETCH OFF		00								
	08	DSK	0	1	SKIN TONE SWITCH	PICTURE MODE					00	00	00	00	
	09	ASK	0	1	SKIN TONE ANGLE SELECTION		00								
	0A	WSK	0	1	SKIN TONE WIDTH SELECTION		00								
	0B	SSK	0	1	SKIN TONE SIZE SELECTION		00								
	0C	DGR	1	1	GREEN ENHANCEMENT SWITCH	PICTURE MODE AND MULTIPLE MODE		00			01	01	00	01	
	0C	DGR	1	1	GREEN ENHANCEMENT SWITCH	PICTURE MODE AND MULTIPLE MODE		00			00	00	00	00	(KV-ES38M31 ONLY)
	0D	DGT	7	7	THRESHOLD OF GREEN ENHANCEMENT SWITCH		07								
	0E	GGR	0	1	GREEN ENHANCEMENT GAIN		00								
	0F	WGR	0	1	GREEN ENHANCEMENT WITDH		00								
	10	SGR	0	1	GREEN ENHANCEMENT SIZE		00								
	11	DBL	0	1	BLUE STRETCH SWITCH		00								
	12	GBL	0	1	BLUE STRETCH GAIN SELECTION		00								
	13	SBL	0	1	BLUE STRETCH SIZE SELECTION		00								
	14	CDS	1	1	COLOR DEPENDENT SHARPNESS	PICTURE MODE					01	01	00	01	
	15	CST	7	7	THRESHOLD OF COLOR DEPENDENT SHARPNESS		07								
	16	CTI	0	1	COLOR TRANSIENT IMPROVEMENT	PICTURE MODE					00	00	00	00	
	17	BON	0	1	BLACK OFFSET COMPENSATION	PICTURE MODE					00	00	00	00	
	18	BTD	0	3F	ADAPTIVE BLACK STRETCH	PICTURE MODE					00	00	00	00	
	19	NLD	15	3F	NON-LINEARITY AMPLIFIER	PICTURE MODE AND MULTIPLE MODE		00			15	15	00	15	
	1A	NLW	7	7	STEP WIDTH OF NON-LINEARITY AMPLIFIER		07								
	1B	VGD	15	3F	VARIABLE GAMMA	PICTURE MODE AND MULTIPLE MODE		1F			1F	1F	1F	1F	
	1C	VGW	0	7	STEP WIDTH OF VARIABLE GAMMA		00								
	1D	PKD	3F	3F	PEAKING AMPLITUDE	PICTURE MODE					3F	30	0E	30	
	1E	PKW	8	0F	STEP WIDTH OF PEAKING AMPLITUDE		08								
	1F	SPD	0	3F	STEPNESS CORRECTION	PICTURE MODE					00	00	00	00	
	20	CRD	11	3F	CORING LEVEL	PICTURE MODE					16	16	00	16	
	21	CRW	9	0F	STEP WIDTH OF CORING LEVEL		09								
	22	CRO	0	0F	CORING LEVEL OFFSET FOR VIDEO MODE		01								
	23	LWD	1F	3F	LINE WIDTH CORRECTION		1F								
	24	SNM	0	7	S/N MODE UNDER UNREALIBLE S/N CONDITION		00								
	25	SNC	3	0F	S/N RATIO AVERAGE COUNTER	TV/Video			03	03					
	26	FMC	2	0F	FEATURE MODE MATCHING COUNTER		02								

Adjustment Item Table

TVG Category	No.	Name	Function	50 Single DRC 1250	50 Single DRC Progressive	50 PinP	50 TWIN	50 INDEX	50 Single DRC 100	60 Single DRC 1250	60 Single DRC Progressive	60 PinP	60 TWIN	60 INDEX	60 Single DRC 100	Device Name
MID	00	HPH	HORIZONTAL ACTIVE DISPLAY AREA PHASE	52	52	52	92	8D	52	52	52	52	7E	78	52	MB94918
	01	VPH	VERTICAL ACTIVE DISPLAY AREA PHASE	20	20	20	2A	26	12	25	25	25	2E	2D	14	
	02	HSZ	HORIZONTAL ACTIVE DISPLAY AREA SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	03	VSZ	VERTICAL ACTIVE DISPLAY AREA SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	04	HPW	DISPLAY H-SYNC PLUS WIDTH	3F	3F	3F	3F	3F	3F	3F	3F	3F	3F	3F	3F	
	05	VPW	DISPLAY V-SYNC PLUS WIDTH	03	03	03	03	03	03	03	03	03	03	03	03	
	06	YDL	DISPAY OUTPUT Y/C DELAY CORRECTION	00	00	00	00	00	00	00	00	00	00	00	00	
	07	MHP	MAIN PICTURE HORIZONTAL POSITION (SINGLE & PINP)	7F	7F	7F			7F	7F	7F	7F			7F	
	08	MVP	MAIN PICTURE VERTICAL POSITION (SINGLE & PINP)	7F	7F	7F			7F	7F	7F	7F			7F	
	09	MHS	MAIN PICTURE HORIZONTAL SIZE (SINGLE & PINP)	7F	7F	7F			7F	7F	7F	7F			7F	
	0A	MVS	MAIN PICTURE VERTICAL SIZE (SINGLE & PINP)	7F	7F	7F			7F	7F	7F	7F			7F	
	0B	PHP	PINP SUB PICTURE HORIZONTAL POSITION			6B						53				
	0C	PVP	PINP SUB PICTURE VERTICAL POSITION			5E						57				
	0D	PHS	PINP SUB PICTURE HORIZONTAL SIZE			7F						7F				
	0E	PVS	PINP SUB PICTURE VERTICAL SIZE			7F						7F				
	0F	PHO	PINP SUB PICTURE HORIZONTAL POSITION OFFSET			76						68				
	10	PVO	PINP SUB PICTURE VERTICAL POSITION OFFSET			6E						6B				
	11	TMP	TWIN MAIN PICTURE HORIZONTAL POSITION				00						00			
	12	TSP	TWIN SUB PICTURE HORIZONTAL POSITION				01						01			
	13	TVP	TWIN MAIN & SUB PICTURE VERTICAL POSITION			00	00	00				00	00	00		
	14	THS	TWIN MAIN & SUB PICTURE HORIZONTAL SIZE			00	00	00				00	00	00		
	15	TVS	TWIN MAIN & SUB PICTURE VERTICAL SIZE	00	00	00	00	00	00	00	00	00	00	00	00	
	16	THO	TWIN MAIN & SUB PICTURE HORIZONTAL POSITION OFFSET													
	17	TVO	TWIN MAIN & SUB PICTURE VERTICAL POSITION OFFSET													
	18	XHS	INDEX SUB PICTURE HORIZONTAL SIZE													
	19	XVS	INDEX SUB PICTURE VERTICAL SIZE													
	1A	XHG	INDEX HORIZONTAL GAP WIDTH BETWEEN PICTURES													
	1B	XVG	INDEX VERTICAL GAP WIDTH BETWEEN PICTURES													
	1C	XHP	INDEX 1ST SUB PICTURES HORIZONTAL POSITION													
	1D	XVP	INDEX 1ST SUB PICTURES VERTICAL POSITION													
	1E	DHP	DRC HORIZONTAL ACTIVE AREA POSITION	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	1F	DHS	DRC HORIZONTAL ACTIVE PIXEL SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	20	DVP	DRC VERTICAL ACTIVE AREA LINE POSITION	1A	1A	1A	3F	3F	1A	1A	1A	1A	39	39	1A	
	21	DVS	DRC VERTICAL ACTIVE AREA LINE SIZE	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	7F	
	22	VHP	VDO HORIZONTAL ACTIVE AREA POSITION			7F	7F	7F				7F	7F	7F		
	23	VHS	VDO HORIZONTAL ACTIVE PIXEL SIZE			7F	7F	7F				7F	7F	7F		
	24	VEP	VDO VERTICAL ACTIVE AREA EVEN POSITION			1E	1E	1E				1B	1B	1B		
	25	VVS	VDO VERTICAL ACTIVE AREA LINE SIZE			7F	7F	7F				7F	7F	7F		
	26	VOP	VDO VERTICAL ACTIVE AREA ODD POSITION			00	00	00				00	00	00		
	27	CLT	VDO CLAMP PULSE OUTPUT TIMING			7F	7F	7F				7F	7F	7F		
	28	CLW	VDO CLAMP PULSE WIDTH			04	04	04				04	04	04		
	29	VYD	VDO ANALOG INPUT Y/C DELAY CORRECTION			00	00	00				00	00	00		
	2A	VCR	VDO CROMA SIGNAL ORDER			01	01	01				01	01	01		
	2B	VDI	VDO DIGITAL ANALOG INPUT SELECTION			00	00	00				00	00	00		

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	TV	Video	NRmode0	NRmode1	NRmode2	NRmode3	Dynamic	Standard/ Drama	Hi-Fine/ Soft	Personal	Device Name
3CM	00	FRZ	0	1	EXTERNAL MEMORY TEST BIT		00											UPD64082
	01	NRM	0	3	NOISE REDUCTION OPERATION MODE		00											
	02	YCO	0E	0F	Y/C SIGNAL OUTPUT SELECTION		0D											
	03	SYC	1	3	SYSTEM CLOCK SELECTION		01											
	04	STD	0	3	STANDARD/NON-STANDARD OPERATION SELECTION		00											
	05	MSS	0	3	INTER-FRAME/INTER-LINE OPERATION SELECTION		00											
	06	KIL	3	3	KILLER/NON-KILLER OPERATION SELECTION		03											
	07	EAD	0	1	EXTERNAL Y-ADC SWITCH		00											
	08	ECS	1	3	EXTERNAL C-SYNC INPUT SELECTION		01											
	09	CPP	2	3	ADC INPUT LEVEL & CLUMP PULSE WIDTH SELECTION		02											
	0A	PWR	0	1	ADC INPUT WIDTH SWITCH		00											
	0B	HDP	5	7	HORIZONTAL PHASE ADJUSTMENT		05											
	0C	CDL	4	7	C-SIGNAL ADJUSTMENT		04											
	0D	DYC	2	0F	DY DETECTION CORING LEVEL ADJUSTMENT	NR MODE (0-3)				02	02	02	04					
	0E	DYG	0A	0F	DY DETECTION GAIN ADJUSTMENT	NR MODE (0-3)				0A	0A	0A	0A					
	0F	DCC	5	0F	DC DETECTION CORING LEVEL ADJUSTMENT	NR MODE (0-3)				05	03	03	05					
	10	DCG	5	0F	DC DETECTION GAIN ADJUSTMENT	NR MODE (0-3)				05	0A	0A	05					
	11	YNR	1	0F	YNR NON-LINEAR FILTER SETUP		01											
	12	CNR	1	0F	CNR NON-LINEAR FILTER SETUP		01											
	13	WSC	1	3	NOISE DETECTION CORING ADJUSTMENT		01											
	14	VTH	1	3	HYSTERESIS SELECTION FOR H-SYNC NON-STANDARD	TV/Video		01	01									
	15	VTR	1	3	SENSITIVITY SELECTION FOR H-SYNC NON-STANDARD	TV/Video		01	01									
	16	LDR	2	3	SENSITIVITY SELECTION FOR FRAME-SYNC NON STANDARD	TV/Video		02	02									
	17	VAP	3	7	GAIN ADJUSTMENT FOR VERTICAL SHAPE CORRECTION	PICTURE MODE								03	00	00	00	
	18	VAI	0C	1F	VANISHING ADJUSTMENT FOR VERTICAL SHAPE CORRECTION	PICTURE MODE								0C	00	00	00	
	19	TST	0	1	TEST BIT		00											
	1A	YPF	3	3	CENTER FREQUENCY SELECTION FOR Y-PEAKING BPF	PICTURE MODE								03	03	03	03	
	1B	YPG	8	0F	GAIN ADJUSTMENT FOR Y-PEAKING BPF	PICTURE MOD								0A	08	08	08	
	1C	VSE	0A	0F	LINE COMB FILTER SETUP		0A											
	1D	CCN	0	1	C-SIGNAL SPLIT FILTER SETUP		00											
	1E	COS	0	1	C-SIGNAL DELAY SWITCH AT NOISE REDUCTION		00											
	1F	SDC	0	1	DC DETECTION SENSITIVITY SWITCH		00											
	20	SDY	1	1	DY DETECTION LOWER-LEVER SENSITIVITY SWITCH		01											
	21	D2G	4	7	D2 GAIN SELECTION		04											
	22	YHC	0	3	Y-SIGNAL HIGHER-LEVEL CORING SELECTION	PICTURE MOD	00							00	00	00	00	
	23	YHG	0	1	Y-SIGNAL HIGHER-LEVEL GAIN SWITCH	PICTURE MOD	00							00	00	00	00	
	24	SHT	0	0F	NON-STANDARD DETECTION & H/V COUNTER TEST BITS		00											
	25	CLK	8	0F	CLOCK TEST BIT		08											
	26	PLL	0D	0F	PLL FILTER SETUP		0D											
	27	KRF	3	0F	KILLER DETECTION REFERENCE ADJUSTMENT		03											
	28	HSL	0C	0F	H-SYNC SLICE LEVEL ADJUSTMENT		0C											
	29	VSL	8	0F	V-SYNC SLICE LEVEL ADJUSTMENT		08											
	2A	BPS	4	0F	INTERNAL BURST GATE START POSITION ADJUSTMENT		04											
	2B	BPW	0A	0F	INTERNAL BURST GATE WIDTH ADJUSTMENT		0A											
	2C	ADC	3	3	ADC CLOCK DELAY SELECTION		03											
	2D	APD	1	1	ADC POWER-DOWN SWITCH		01											
	2E	NSD	1	1	NON-STANDARD DETECTION TEST BIT		01											
	2F	SPD	2	3	MEMORY POWER-DOWN SWITCH		02											
	30	CNT	0	1	CNR TEST BIT		00											

Adjustment Item Table

TVG Category	Functionality No.	Functionality Name	Initial	Range	Function	Table and Note	VIDEO PICTURE MODE Dynamic	Standard 00	Hi-Fine/ Soft	Personal	TV PICTURE MODE Dynamic	Standard/ Drama	Hi-Fine/ Soft	Personal	Device Name
2CM	00	APA	1	1	2D COMB APACON ON/OFF	PICTURE MODE	01	00	00	00	00	00	00	00	CXA2069Q

TVG Category	Functionality No.	Functionality Name	Initial	Range	Function	Table and Note	Common	Initial Value (Detailed) Sur VDD	Sur VDP	Sur TRS	Sur SIM	Sur Off	Dynamic	Standard/ Drama	Hi-Fine/ Soft	Personal	Device Name
DSP	00	DUL	0	3	DIP UNLOCK DETECTION MODE		00										TC9446F
	01	DIM	3	3	DIGITAL INPUT MODE		03										
	02	TFM	5A	7F	TRUSURROUND FRONT MINUS	VDD/VDP		5A	5A								
	03	TFP	12	7F	TRUSURROUND FRONT PLUS	VDD/VDP		12	12								
	04	TCE	40	7F	TRUSURROUND CENTER	VDD/VDP		40	40								
	05	TS1	20	FF	TRUSURROUND SURROUND #1	VDD/VDP		20	EO								
	06	TS2	20	7F	TRUSURROUND SURROUND #2	VDD/VDP		20	20								
	07	TSP	7B	7F	TRUSURROUND SURROUND PLUS	VDD/VDP		68	68								
	08	TSM	7B	7F	TRUSURROUND SURROUND MINUS	VDD/VDP		68	68								
	09	LFE	5A	7F	LOW FREQUENCY EFFECT		5A										
	0A	BHL	40	7F	BBE EFFECT 1 FOR BBE HIGH	VDD/VDP/TRS/SIM/OFF		33	33	33	28	40					
	0B	BHH	48	7F	BBE EFFECT 2 FOR BBE HIGH	VDD/VDP/TRS/SIM/OFF		33	33	33	28	40					
	0C	BLL	33	7F	BBE EFFECT 1 FOR BBE LOW	VDD/VDP/TRS/SIM/OFF		2B	2B	2B	24	33					
	0D	BLH	33	7F	BBE EFFECT 2 FOR BBE LOW	VDD/VDP/TRS/SIM/OFF		2B	2B	2B	24	33					
	0E	DLR	1	7	DELAY SELECTION AT DSP RESET		07										
	0F	BBE	1	3	BBE SELECTION	EXCEPT PERSONAL							01	01	03		

TVG Category	Functionality No.	Functionality Name	Initial	Range	Function	50	60	Common	Device Name
TXT	00	TXH	4B	3F	TELETEXT HORIZONTAL POSITION FOR PHILIPS			4B	SAA5261
	01	TXV	0E	3F	TELETEXT VERTICAL POSITION FOR PHILIPS			0E	

Adjustment Item Table

TVG Category	No.	Name	Initial	Range	Function	Table and Note	Common	Initial Value (Detailed) 50	Initial Value (Detailed) 60	Device Name
OPM	00	OSH	12	3F	OSD H POSITION		12			CXP750096
	01	FW1	0	3F	OSD ODD/EVEN FIELD WINDOW SETUP #1		00			
	02	FW2	3	3F	OSD ODD/EVEN FIELD WINDOW SETUP #2		03			
	03	OHO	9	0F	OSD H Position Offset for INDEX		05			
	04	IL1	1C	3F	INDEX SUB-SCREEN OSD 1st LINE VERTICAL POSITION	50/60Hz		25	22	
	05	IVO	2F	3F	INDEX SUB-SCREEN OSD VERTICAL POSITION	50/60Hz		2B	20	
	06	**COM**	0	03	COMB OPERATION SELECTION		00			
	07	**APC**	1	1	APC SWITCH		01			
	08	**TSY**	0	03	TV SYSTEM SELECTION UNDER SEARCHING WITH AUTO TV SYSTEM		00			
	09	**MUT**	0	1	NO SIGNAL MUTE		00			
	0A	**AFM**	1	1	AUTO FM SWITCH		01			
	0B	TVO	3	7	V-ANGLE CORRECTION TO PICTURE ROTATION		03			
	0C	DBL	0	1	DISABLE BLUEBACK FUNCTION		01			
	0D	**SSO**	1	3	SPEED CH SEARCH SELECTION		01			
	0E	TRP	0	3F	MPEG/JPEG NOISE REDUCTION FOR EACH INPUT		00			
	0F	SCH	1	7F	CH SELECTION FOR SHIPPING CONDITION	NTSC	7F			
	10	SCA	1	1	CABLE/AIR SELECTION FOR SHIPPING CONDITION	NTSC	01			
	11	DMG	0	1	DISABLE MENU-OPERATION GUIDE		00			
	12	VSN	0	1	ENABLE NOISE REDUCTION IN VIDEO MODE		00			
	13	RUC	0F	0F	RF SIGNAL CHANGE COUNTER AFTER UNLOCKED	Disabled if set to 0FH	04			
	14	RLC	0F	0F	RF SIGNAL CHANGE COUNTER AFTER LOCKED	Disabled if set to 0FH	01			

TVG Category	No.	Name	Initial	Range	Function	Common	Device Name
OPB	00	OP1	E7	FF	OPTION BIT 1 (SEE THE SPECIFIED SHEET)	6F	option-bit
	01	OP2	13	FF	OPTION BIT 2 (SEE THE SPECIFIED SHEET)	13	

KV-ES38M31/ES38M61/ES38M90/ES38M91
RM-916

Abbreviation:

FF	=	?????	ECO	=	Eco Mode
R4	=	DRC1250	VC	=	V-Compressed Mode
PR	=	Preset PIP	NC	=	Non-Compressed Mode
4P	=	R4 or PR	Sur	=	Surround
VC	=	V-Compressed Mode	VDD	=	Virtual Dolby Digital
NC	=	Non-compressed Mode	VDP	=	Virtual Dolby Prologic
			TRS	=	Tru Surround
			SIM	=	Simulated

NOTE

- ▇ shaded items are fixed data.
- ▇ no data
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
- Note for Different Data: Those are the standard data values written on the microprocessor. Therefore, the data values of the modes and stored respectively in the memory.
  In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

OPTION NOTE

COM	Comb Operation Selection	00 = automatic operation (depends on color system status), 01 = no comb operation, 02 = forced 2D-comb operation, 03 = forced 3D-comb operation
TSY	TV System Selection for Auto TV System	00 = B/G, 01 = I, 10 = D/K, 11 = M
SSO	Speed CH Search Selection	00 = normal, 01 = 4 times, 10 = 6 times, 11 = 8 times
TRP	MPEG/JPEG Noise Reduction	

Input	–	–	TV	Video 1	Video 2	Video 3	Video 4	DVD

OP1 Items

Item	TOP	NICAM	HDEV	Reserved	Progressive	DVD Input	AV Input		HEX
KV-ES38M31	1	1	1	0	1	1	1	1	EF
KV-ES38M61	0	1	1	0	1	1	1	1	6F
KV-ES38M90	0	1	1	0	1	1	1	1	6F
KV-ES38M91	0	1	1	0	1	1	1	1	6F

DRC 3 Mode	DRC - MF3 Mode	1 = 3 Mode (ES38)	
AV Input	00 = no AV Input	01 = 1 AV Input	10 = 3 AV Input 11 = 4 AV Input

OP2 Items

Item	C-Text	Korea Stereo	Korea Mode	A-TV SYS	USST	SSV-Model	OSD Language	HEX
KV-ES38M31	0	0	0	1	0	0	11	13
KV-ES38M61	0	0	0	1	0	0	11	13
KV-ES38M90	0	0	0	1	0	0	11	13
KV-ES38M91	0	0	0	1	0	0	11	13

A-TV sys	Auto TV System in Auto Program	0 = Disabled, 1 = Enabled
SSV Model	SSV = Production Model	0 = Original, 1 = Disable PIP/ TWIN/ Digital-IN
OSD Language	00 = English only,	01 = English & Chinese, 10 = English & Arabic 11 = English, Chinese & Arabic

NOTE

No.	Modes	Details	Entry Conditions
1.	50NC/60NC	Signal 50/60Hz Non-Compressed mode.	Input 50Hz(PAL)/60Hz(NTSC), wide mode OFF (TV/ video mode)
2.	50VC/60VC	Signal 50/60Hz V-Compressed mode.	Input 50Hz(PAL)/60Hz(NTSC), wide mode ON (TV/ Video mode)
3.	ECO ON/OFF NC	Eco modeON/OFF Non-Compressed mode.	ECO mode ON/OFF, wide mode OFF
4.	ECO ON/OFF VC	ECO mode ON/OFF V-Compressed mode.	ECO mode ON/OFF, wide mode ON
5.	50/60 DVD	Signal 50/60Hz Digital Video Disk	Input 50Hz(PAL)/60Hz(NTSC), DVD
6.	Multi Comb	Multi Comb Filter	Input PAL, NTSC 3.58, Service mode category OPM 03 COM 01 (Multi Model only)
7.	3D Comb	3 Dimensional Comb Filter	Input NTSC 3.58 only, Service mode category OPM 03 COM 02 (NTSC model only)
8.	S-Input	S-Video Input	Connect S-Video Cable, video mode

6-3. PICTURE QUALITY ADJUSTMENTS

H-TRAPIZIUM ADJUSTMENT

1. Input a cross hatch/dot signal.

2. Adjust DAC 4 HTR to make H-Trapizoid distortion best.

SUB CONTRAST, SUB HUE, SUB COLOR

Adjustment condition

	SAJ	00	PIC	3F
		06	DYC	0
		0E	CLO	6
		10	HUO	7
		13	PIO	0
	JGL	04	BBT	0
		05	LML	3

PICTURE QUALITY : HI-FINE
ECO MODE : OFF
WIDE MODE : OFF
DRC-MF : DRC1250

INPUT SIGNAL

Video Color Bar (White and Color 75%)
RF Color Bar (White and Color 75%)

MEASUREMENT POINT

VR ; R100 (the pin 6 of CN1100 at A board)
VB ; B100 (the pin 7 of CN1100 at A board)

CAUTION
After the above Adjustment, these adjustment parameters must be recovered to the original condition.

Original condition
SAJ 00 PIC 28 HI-FINE
SAJ 06 DYC 0 HI-FINE

	50 TV	50 VIDEO	60 TV	60 VIDEO
OE CLO	9	8	6	6
10 HUO	8	8	9	9

13 PIO TWIN = 3
JGL 04 BBT 3
05 LML 0

1. NTSC VIDEO IN PUT

Input signal ; NTSC color bar, 75% to Video 1.
[TWIN] mode, [Service] mode.

(i) SUB CONTRAST
Condition : SAJ 00 PIC 3F
02 COL 0
JGL 01 RGB 4
SAJ 13 PIO 0

Adjusting parameter:
LEFT ; YCT 08 YOL
RIGHT ; SYC 08 YOL
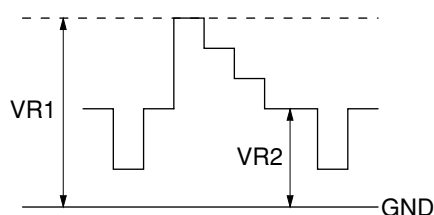
VR1 - VR2 = VR = 1.85 ± 0.07 (Vp-p)

(ii) SUB HUE/SUB COL
Condition : SAJ 02 COL 1F
JGL 01 RGB 7
SAJ 10 HUO 7

Adjusting parameter:
LEFT ; YCT 0A COL
YCT 00 TNT
RIGHT ; SYC 0A COL
SYC 00 TNT
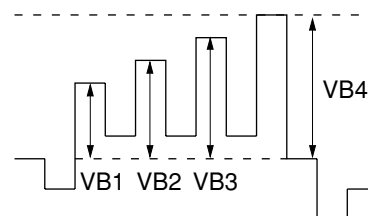
VB1 = VB4 ± 70 mV
VB2 = VB3 ± 70 mV

2. NTSC RF INPUT

Input signal ; NTSC RF color bar, 75%.
[TWIN] mode, [Service] mode.

(i) SUB CONTRAST
Condition : SAJ 00 PIC 3F
02 COL 0
JGL 01 RGB 4

Adjusting parameter:
LEFT ; YCT 04 SCT
RIGHT ; SYC 04 SCT
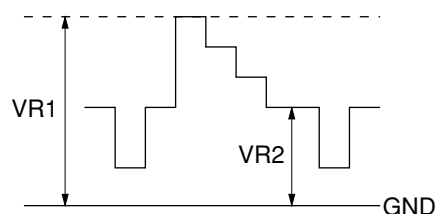
VR1 - VR2 = VR = 1.85 ± 0.07 (Vp-p)

(ii) SUB HUE/SUB COL
Condition : SAJ 02 COL 1F
JGL 01 RGB 7
SAJ 10 HUO 7

Adjusting parameter:
LEFT ; YCT 03 SCL
YCT 00 TNT
RIGHT ; SYC 03 SCL
SYC 00 TNT
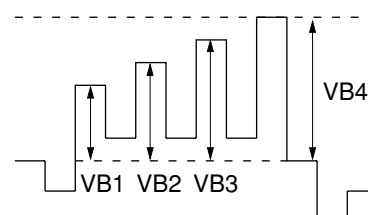
VB1 = VB4 ± 70 mV
VB2 = VB3 ± 70 mV

3. PAL RF INPUT

Input signal ; PAL RF color bar, 75%.
[TWIN] mode, [Service] mode.

(i) SUB CONTRAST

Condition :

SAJ	00	PIC	3F
SAJ	02	COL	0
JGL	01	RGB	4

Adjusting parameter:

LEFT	;	YCT	04	SCT
RIGHT	;	SYC	04	SCT
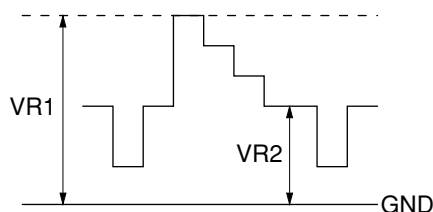
$$VR1 - VR2 = VR = 1.85 \pm 0.07 \text{ (Vp-p)}$$

(ii) SUB HUE/SUB COL

Condition :

SAJ	02	COL	1F
JGL	01	RGB	7

Adjusting parameter:

LEFT	;	YCT	03	SCL
RIGHT	;	SYC	03	SCL
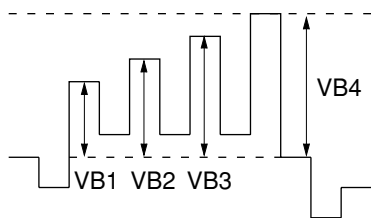
$$VB2 = VB3 = VB4 = \pm 70 \text{ mV}$$

6-4. DEFLECTION ADJUSTMENTS

FOR DRC 1250(50Hz) MODE

1. Set to Service Mode.
2. Input a Pal cross hatch/dot signal.
3. Set the following condition.
   Picture Mode to [DYNAMIC], Picture Rotation to [+/- 0] and Eco Mode to OFF.
4. Set to DRC 1250 mode.
5. Using the [1] and [4] buttons select category GEO (Service Mode).
6. Raise/lower the data with the [3] and [6] buttons. Select and adjust the following items to obtain optimum image.

GEO:	00	VSZ	V SIZE
	01	VPS	V POSITION
	02	VLN	V LINEARITY
	03	SCO	S CORRECTION
	04	HSZ	H SIZE
	05	HPS	H POSITION
	06	PAP	PIN AMP
	07	UPN	UPPER CORNER PIN
	08	LPN	LOWER CORNER PIN
	09	TRZ	TRAPEZIUM
	0A	AGL	AFC ANGLE
	0B	BOW	AFC BOW

7. Using the [1] and [4] buttons select category DAC (Service Mode).
8. Select and adjust the following items to obtain optimum image. Raise/lower the data with the [3] and [6] buttons. Select and adjust the following item to obtain optimum image.

GEO:	03	CCP	LOWER CORNER PIN
	04	HTR	HORIZONTAL TRAPEZIUM

9. Select "GEO 04 HSZ" with the [1] and [4] buttons.
10. Confirm the H Size condition. If necessary, adjust the H SIZE to get a best condition.
11. Write into the memory by pressing [MUTING] then [0] on the remote commander.

FOR DRC100(50Hz) MODE

12. Change the DRC-MF to DRC100 and then adjust the following items.

Service Item

GEO:	00	VSZ	V SIZE
	01	VPS	V POSITION
	02	VLN	V LINEARITY
	03	SCO	S CORRECTION
	04	HSZ	H SIZE
	05	HPS	H POSITION
	06	PAP	PIN AMP
	07	UPN	UPPER CORNER PIN
	08	LPN	LOWER CORNER PIN
	09	TRZ	TRAPEZIUM
	0A	AGL	AFC ANGLE
	0B	BOW	AFC BOW

13. Repeat step 5 and 6.

FOR PIP(50Hz) MODE

14. Change to PIP mode. (PIP: ON) and then adjust the following items.

Service Item

GEO:	00	VSZ	V SIZE
	01	VPS	V POSITION
	02	VLN	V LINEARITY
	03	SCO	S CORRECTION
	04	HSZ	H SIZE
	05	HPS	H POSITION
	06	PAP	PIN AMP
	07	UPN	UPPER CORNER PIN
	08	LPN	LOWER CORNER PIN
	09	TRZ	TRAPEZIUM
	0A	AGL	AFC ANGLE
	0B	BOW	AFC BOW
DAC	01	HLN	H LINEARITY
	02	MDP	MIDDLE PIN
	03	CCP	LOWER CORNER PIN
	04	HTR	HORIZONTAL TRAPEZIUM

15. Repeat step 5, 6 and 8.

FOR TWIN(50Hz) MODE

16. Change to TWIN mode (TWIN: ON)

17. Copy "GEO 00 VSZ, 04 HSZ, 05 HPS (PIP 50Hz)"
     "GEO 00 VSZ, 01 VPS, 04 HSZ, 05 HPS (TWIN 50Hz)"

18. Adjust " GEO 09 TRZ".

FOR PROGRAM INDEX(50Hz) MODE

19. Change to PROGRAM INDEX MODE.

20. Write "GEO 00 VSZ (INDEX 50Hz)" as "GEO 00 VSZ (PIP 50Hz)" - 4 step.

21. Copy "GEO 01 VPS, 04 HSZ, 05 HPS (PIP 50Hz)" to "GEO 01 VPS, 04 HSZ, 05 HPS (INDEX 50Hz)".

22. Adjust "GEO 09 TRZ".

FOR WIDE MODE DRC1250(50Hz)

23. Change to VIDEO MODE.

24. Change to DRC-MF: DRC1250, WIDE MODE: ON

25. Adjust the following item.

Service Item

GEO:	00	VSZ	V SIZE
	01	VPS	V POSITION
	02	VLN	V LINEARITY
	03	SCO	S CORRECTION
	04	HSZ	H SIZE
	05	HPS	H POSITION
	06	PAP	PIN AMP
	07	UPN	UPPER CORNER PIN
	08	LPN	LOWER CORNER PIN
	09	TRZ	TRAPEZIUM
	0A	AGL	AFC ANGLE
	0B	BOW	AFC BOW
DAC	01	HLN	H LINEARITY
	02	MDP	MIDDLE PIN
	03	CCP	LOWER CORNER PIN
	04	HTR	HORIZONTAL TRAPEZIUM

26. Repeat step 5, 6 and 8.

FOR WIDE MODE, DRC100(50Hz)

27. Change to VIDEO MODE.

28. Change to DRC-MF: DRC100, WIDE: ON

29. Adjust the following item.

Service Item

GEO:	00	VSZ	V SIZE
	01	VPS	V POSITION
	02	VLN	V LINEARITY
	03	SCO	S CORRECTION
	04	HSZ	H SIZE
	05	HPS	H POSITION
	06	PAP	PIN AMP
	07	UPN	UPPER CORNER PIN
	08	LPN	LOWER CORNER PIN
	09	TRZ	TRAPEZIUM
	0A	AGL	AFC ANGLE
	0B	BOW	AFC BOW
DAC	01	HLN	H LINEARITY
	02	MDP	MIDDLE PIN
	03	CCP	LOWER CORNER PIN
	04	HTR	HORIZONTAL TRAPEZIUM

FOR WIDE MODE, PIP(50Hz)

30. Change to VIDEO MODE.

31. Change to PIP: ON, WIDE MODE: ON

32. Adjust all items listed in number no.29.

33. Repeat step 5, 6 and 8.

FOR DRC1250(60Hz) MODE

34. Input 525/60Hz signal. Change to DRC-MF: DRC1250.

35. Copy "DAC 00 HCT (DRC1250, 50Hz)" to
    "DAC 00 HCT (DRC1250, 60Hz)".

36. Adjust the following items.

Service Item

GEO:	00	VSZ	V SIZE
	01	VPS	V POSITION
	02	VLN	V LINEARITY
	03	SCO	S CORRECTION
	04	HSZ	H SIZE
	05	HPS	H POSITION
	06	PAP	PIN AMP
	07	UPN	UPPER CORNER PIN
	08	LPN	LOWER CORNER PIN
	09	TRZ	TRAPEZIUM
	0A	AGL	AFC VANGLE
	0B	BOW	AFC BOW
DAC	01	HLN	H LINEARITY
	02	MDP	MIDDLE PIN
	03	CCP	LOWER CORNER PIN
	04	HTR	HORIZONTAL TRAPEZIUM

37. Repeat step 5, 6 and 8.

FOR DRC100(60Hz) MODE

38. Change to DRC-MF: DRC100 and then adjust the items
    listed in no.36.

FOR PIP(60Hz) MODE

39. Change to PIP mode (PIP: ON) and then adjust the items
    listed in no.36.

40. Repeat step 5, 6 and 8.

FOR TWIN(60Hz) MODE

41. Change to TWIN: ON

42. Copy "GEO 00 VSZ, 04 HSZ, 05 HPS (PIP 60Hz)" to
    "GEO 00 VSZ, 01 VPS, 04 HSZ, 05 HPS (TWIN 60Hz)"

43. Adjust " GEO 09 TRZ".

FOR PROGRAM INDEX(60Hz) MODE

43. Change to PROGRAM INDEX MODE.

44. Copy "GEO 00 VSZ, 04 HSZ, 05 HPS (PIP 60Hz)" to
    "GEO 00 VSZ, 01 VPS, 04 HSZ, 05 HPS (TWIN 60Hz)"

45. Adjust " GEO 09 TRZ".

46. Repeat step 5, 6 and 8.

FOR WIDE MODE, DRC1250(60Hz)

47. Change to VIDEO MODE: Input 525/60Hz singal.

48. Change to DRC-MF: DRC1250, WIDE MODE: ON

49. Adjust the items listed in no.36.

FOR WIDE MODE, DRC100(60Hz)

50. Change the VIDEO MODE: Input 525/60Hz signal.

51. Change to DRC-MF: DRC100, WIDE MODE: ON.

52. Adjust the items listed in no.36 and repeat step 5, 6 and 8.

FOR WIDE MODE, PIP(60Hz)

53. Change the VIDEO MODE: Input 525/60Hz signal.

54. Change to PIP: ON, WIDE MODE: ON.

55. Adjust the items listed in no.36 and repeat step 5, 6 and 8.

6-5. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

1. Enter to Service Mode.

2. Press commander buttons 5 and 0 (Data Initialize), and 2
   and 0 (Data Copy) to initialize the data.

3. Call each item number and check if the respective screen
   shows the normal picture.
   In cases where items are not well adjusted, rectify the items
   with fine adjustment.

4. Select item numbers "OPB00" (OP1), "OPB01" (OP2) and
   respectively set the bit per model with command buttons 3
   and 6.

5. Press commander buttons 8 and 0 (Test Normal) to return
   to the data that was set on the shipment from the factory.
   (This will also cancel Service Mode).

6-6. PICTURE DISTORTION ADJUSTMENT (1)

Item Number 00 – 0B

GEO 0   VSZ (V SIZE)
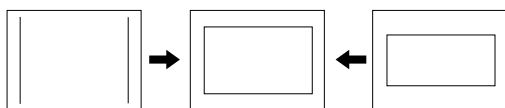
GEO 1   VPS (V POSITION)
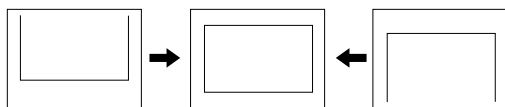
GEO 2   VLN (V LINEARITY)
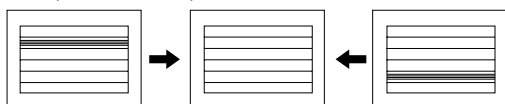
GEO 3   SCO (VERTICAL S-Correction)
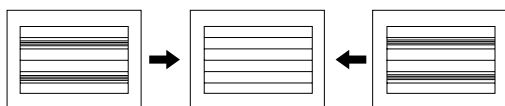
GEO 4   HSZ (H SIZE)

GEO 5   HPS (H POSITION)

GEO 6   PAP (PIN AMP)

GEO 07   UPN (UPPER CORNER PIN)
GEO 08   LPN (LOWER CORNER PIN)

GEO 9   TRZ (TRAPEZIUM)

GEO 0A   AGL (AFC.ANGLE)

GEO 0B   BOW (AFC.BOW)

PICTURE DISTORTION ADJUSTMENT (2)

H-TRAPEZOID (DAC 4 HTR)

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SECTION 7
DIAGRAMS

7-1. BLOCK DIAGRAM

D (POWER SUPPLY, DEFLECTION HV)

J

IC8302
CXA2069Q

IC8103 AK4524 AUDIO CODEC

IC1205 DIFF. AMP

IC1201 TDA7315D AUDIO PRCESSOR

IC1204 TDA7481 LCH OUT — L SPEAKER

IC1203 TDA7481 RCH OUT — R SPEAKER

IC8105 TC9446F-002 AUDIO DIGITAL SIGNAL PROCESSOR

DIR AMP IC8106

CONTROL LINE FROM MAIN UCOM

MUTING

A (MAIN-MICON, TUVIF, AUDIO AMP)

A1 (AUDIO DSP)

TO VM BOARD

CN6104

QP (–)

5

CN6101

6 HP1

4 CP CNTL

2 REF

TO E BOARD CN4800

IC6104
DQP-AMP

IC6354
MULTIPLAY

IC6356
N/S. OUT

CN6103

ROT+ 3

ROT- 1

TO RT COIL

IC6105
DQP-CONT

Q6107

DQP H-MOJI

IC6353
5V REG

IC6102
DQP-CONT

IC6106
H-SIZE CONT

IC6351
DC CONT.

IC6101
QP-CONT

CN6100

10 DF SW

14 HP1

17 N/S

28 DF DRIVE

29 FOCUS

30 H LIN

34 GND

35 V COMP+

39 V COMP-

37 V SAW-

33 V SAW+

41 VFB2

44 H CENT

46 H-SAW

48 M PIN

49 ABL 1

TO BOARD CN6802

IC6108
DAC CONT.

1 M-PIN

2 DF SW

3 DF PH

4 H-LIN

5 QP DV

6 H-TRP

7 QP PH

8 QP AC

9 CP CTR

10 H-CENT

11 QP AV

12 QP DC

Q6106
CONST. C

Q6128
H-SAW

Q6125
H LIN AMP 1
Q6126
H LIN AMP2

IC6103
M.PIN CONP

IC6202
LPF

IC6201
V SIZE COMP

D1
(DF, DQP DRIVE)

A (MAIN-MICON, TUVIF, AUDIO AMP)

TO H2 BOARD
CN1934
CN1195

TO H1/H3 BOARD
CN1901/CN1980
CN1190

TO J BOARD
CN8304
CN1180

2 KEY 2 IN

1 LED R
2 LED G
4 SIRCS
7 KEY 1 IN

1 LP IN
2 LN IN
3 RP IN
4 RN IN
14 TVR OUT
16 TVL OUT
17 CVBS 1 OUT
20 CVBS 2 OUT

IC1205
DIFFERENTIAL AMP

L-UB — 1 LO   L+ 3
R-UB — 7 RO   L- 2
                R+ 5
                R- 6

IC1204
L-AMP
OUT 1
IN 9

IC2200
HP-AMP

CN1193
1 L SP — TO SPEAKER
4 R SP
6 LHP — TO H2 BOARD
7 RHP — CN1932

IC1201
TONE-CTRL
L-UB 11   LOUT 17
R-UB 6   ROUT 16

IC1203
R-AMP
IN 9
OUT 1

TO D BOARD
CN6800

CN1162
DEGAUSS 11
NS ROT 20

TO D BOARD
CN6605

CN1161
ST-BY 5
OVER VOLTAGE PROT. 11
OVER CURRENT PROT. 13

IC001
MAIN CONTROLLER
61 DEGAUSS
52 NS ROT
62 ST-BY
6 OVP
3 OCP
7 H SYNC
8 V SYNC
32 R
33 G
34 B
36 YS
37 YM
35 I
9 RESET
19 B-INT
47 SDA 1
49 SCL 1
40 W PROTECT
48 SDA0
50 SCL0

KEY 2 13
LED 1 54
LED 2 53
SIRCS 64
KEY 1 7
ATT SW 45
AGC MONITOR 16 — AGC
AFT1 17 — AFT1
AFT2 18 — AFT2
F MONO 23 — F MONO
ST 29 — ST
MSP RESET(MSP) 30 — MSPR
MUTE 31 — X → MUTE

HP100
CN1150

VP 100 A20

Q002
BUFFER
YS —

Q001
INVERTER
YM

IC002
RESET IC 1

TO BUS CONTROLLER

B INT 2
CN1100

Q301 Q313
MUTE
STBY
MUTE

5 SDA
6 SCL
7 WC

IC003
EEPROM

TU101
R OUT
L OUT
DEL OUT
SDA — SDA
SCL — SCL
NC — F MONO
NC — MODE
NC (RESET) — MSPR
PLL-SW — ST
AFT OUT — AFT1
RF AGC — AG
SDA
SCL

Q101
BUFFER

RF SIGNAL

TU3301
DET OUT
AFT OUT — AFT2
SDA
SCL

Q3300
Q3301
AMP.

RF SIGNAL

ANTENNA IN

1
SIGNAL
SPLITTER

CP1300

CN1118
3 FS IN
5 B IN
7 G IN
9 R IN

TO V BOARD
CN1801

CN1140
19 GREEN OUT
20 RED OUT
21 BLUE OUT
23 TEXT RED
25 TEXT GREEN
27 TEXT BLUE
29 TEXT BLK

TO E BOARD
CN1401

J
(YCT, COMB FILTER,
VIDEO/AUDIO-IN/OUT)

CN8304

Pin	Signal
50	Y MAIN OUT
47	U MAIN OUT
44	V MAIN OUT
42	V PULSE MAIN OUT
41	H PULSE MAIN OUT
38	Y SUB OUT
35	U SUB OUT
34	V SUB OUT
32	V PULSE SUB OUT
31	H PULSE SUB OUT
27	CVBS OUT TEXT
20	CVBS 2 IN
17	CVBS 1 IN
16	TVL IN
14	TVR IN
4	RN OUT
3	RP OUT
2	LN OUT
1	LP OUT

TO A BOARD CN1180

IC8306 MAIN COLOR DECODER

VS (4)
HS (9)

IC8312 (2) (4) AND GATE

IC8308 SUBCOLOR DECODER

YOUT (21) FL8314
CbOUT (22) FL8315
CrOUT (23) FL8316

(2) SYNC IN
(11) Y FOR SYNC

VS (4)
HS (9)

IC8311 (2) (4) AND GATE

IC8313
CV OUT	1	
Y IN	3	
C IN	5	
C OUT	15	

TO BC4 BOARD CN2001

(2) SYNC IN
(11) Y FOR SYNC
(1) CVB S/Y
(48) C1
(39) C3 — BUFFER Q8302
(41) CVBS/Y3
(44) CVBS/Y2
(43) C2
(46) FSC OUT

IC8314
Y IN	1	
C IN	4	
CV OUT	6	
FSC	9	
ACPN	11	

TO SBX3005-11

Q8464 BUFFER (19) Y1
Q8465 BUFFER (18) CB1
Q8466 BUFFER (17) Cr1

Q8361 BUFFER (19) Y1
Q8362 BUFFER (18) Cb1
Q8363 BUFFER (17) Cr1

C2 (43)
C2 (44)
C2 (1)

CrOUT (23)
CbOUT (22)
YOUT (21)
SCP (10)

IC8309 SW (3) (7) (1)

IC8310 LTI
(1) SC
(6) YIN
(8) -UIN
(9) -VIN

Q8329 AMP Q8330 BUFFER
Q8331 AMP Q8332 BUFFER

19
17
16

IC8302 AV/SW

(47) COUT2
(36) DC OUT
(3) Y1
(5) C1
(7) S1
(1) V1
(2) LV1
(4) RV1
(8) V2
(9) LV2
(11) RV2
(30) VS
(15) V3
(16) LV3
(18) RV3
(59) LV6
(61) RV6

J8301

Video In 1: V1, L1, R1
Video In 2: V2, L2, R2
Video In 3: V3, L3, R3

LOUT2 (43)
ROUT2 (45)
STV (60)
TV (63)
LTV (62)
RTV (64)
VOUT1 (53) — Q8301 BUFFER
LOUT1 (52)
ROUT1 (54)
RVS (31)
LVS (29)
V/YOUT2 (44)
VOUT3 (41) — Q8306 BUFFER
YOUT3 (39) — Q8308 BUFFER
COUT3 (37) — Q8309 BUFFER

Q8304 BUFFER
Q8305
Q8304 BUFFER

Monitor Out

CN8200
Pin	Signal
1	LP
2	LN
3	RP
4	RN
6	R-SW
7	L-SW
9	COAXIAL SIG

TO A1 BOARD CN8100

Monitor out: V, L, R
Digital Audio
J8106 Digital Audio In

Component In: Y, B-Y, R-Y, L, R

CN8301
Pin	Signal
1	R IN
3	L IN
5	Y IN
7	CV IN
8	S IN
9	C IN

(25) RV4
(23) LV4
(24) Y4
(22) V4
(28) S-4
(26) C4

TO H2 BOARD CN1934

B3
(DRC, MID, DRC/MID CONTROLLER)

IC8306

Chroma Decoder (CXA2123)

Y in
C in

IC8308

Sub Chroma Decoder (CXA2123)

Y in
C in

J board

CN1108

V-PULSE M OUT	A24
Y-MAIN OUT	A21
V-MAIN OUT	A23
U-MAIN OUT	A22
H-PULSE M OUT	A25

Y SUB OUT	A19
V SUB OUT	A17
U SUB OUT	A18
H-PULSE SUB OUT	A15
V-PULSE SUB OUT	B16

A board

Y
Cr-Y
Cb-Y

LPF

IC501
Clamp pluse

ADC
TLC5733

Y   8
Cr-Y   8
Cb-Y   8

13.5MHz

H

PLL
TLC29321   WPLLHD

IC603

Y
Cr-Y
Cb-Y
H
V

To MID-X

IC602
16Mbit SDRAM

2.5V 3.3V

V

IC601

DRC 1chip
(CXD2090Q)

DRC process
525i → 525p
525i → 1050i
625i → 625p
625i → 1250i

HREF

RPLLHD

PLL
TLC2933

IC504

54MHz Clock

5.0V

IIC BUS
Expander
(CXA1875)

IC604

IC802
64Mbit SDRAM

2.5V 3.3V

V
H
54MHz
Y   8
Cr-Y   8
Cb-Y   8

54MHz

17.28MHz

IC801

MID-X
(CXD9509Q)

FF process
P and P
P in P
T and P
Index
Scan Convert

Clamp pulse

IC302

Y
Cr-Y
Cb-Y

ADC
CXD2306

clock

IC303

From sub chroma decoder

PLL
CXA3106

H

V

IC901

Y
Cr-Y
Cb-Y

DAC
CXD2309

54MHz clock

LPF

CN502

A7	Y100 OUT
A8	U100 OUT
A9	V100 OUT

5.0V 3.3V

Level converter

I2C

5.0V

Sub μ com
(IIC BUS)

IC902

7-2. SCHEMATIC DIAGRAM

Note:

- All capacitors are in μF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.

  | Pitch: 5 mm |
  | Rating electrical power 1/4W (CHIP: 1/10W) |

- ▭▭ : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation or adjustment for rrepair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Readings are taken with a color-bar signal input.**
  no mark : Common
  underline : PAL
  ( ) : SECAM
  [ ] : NTSC 3.58
  << >> : NTSC 4.43
- **Readings are taken with a 10 MΩ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltage are in Volt.**
- **∗ : Cannot be measured.**
- **Circled numbers are waveform references.**
- ▬▬ : B +bus.
- ▪ ▪ ▪ : B −bus.
- ⇒ : signal path.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(1) Schematic Diagram of A Board

(2) Schematic Diagram of D Board

(POWER SUPPLY, DEFLECTION HV)

(3) Schematic Diagram of D1 Board

⚠️ **D1** (DF, DQP DRIVE)

B-SSS10960-...-D1.-ES38

(4) Schematic Diagram of C Board

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– 84 –

B-SSS10960-...-C..-ES38

(5) Schematic Diagram of E Board

(6) Schematic Diagram of J Board

B-SSS10705-CH.-J.-ES38

(7) Schematic Diagrams of VM and F1 Boards

⚠ **VM** (VM DRIVE)

B-SSS10960-...-VM.-ES38

⚠ **F1** (AC LINE FILTER)

B-SSS10960-...-F1.-ES38
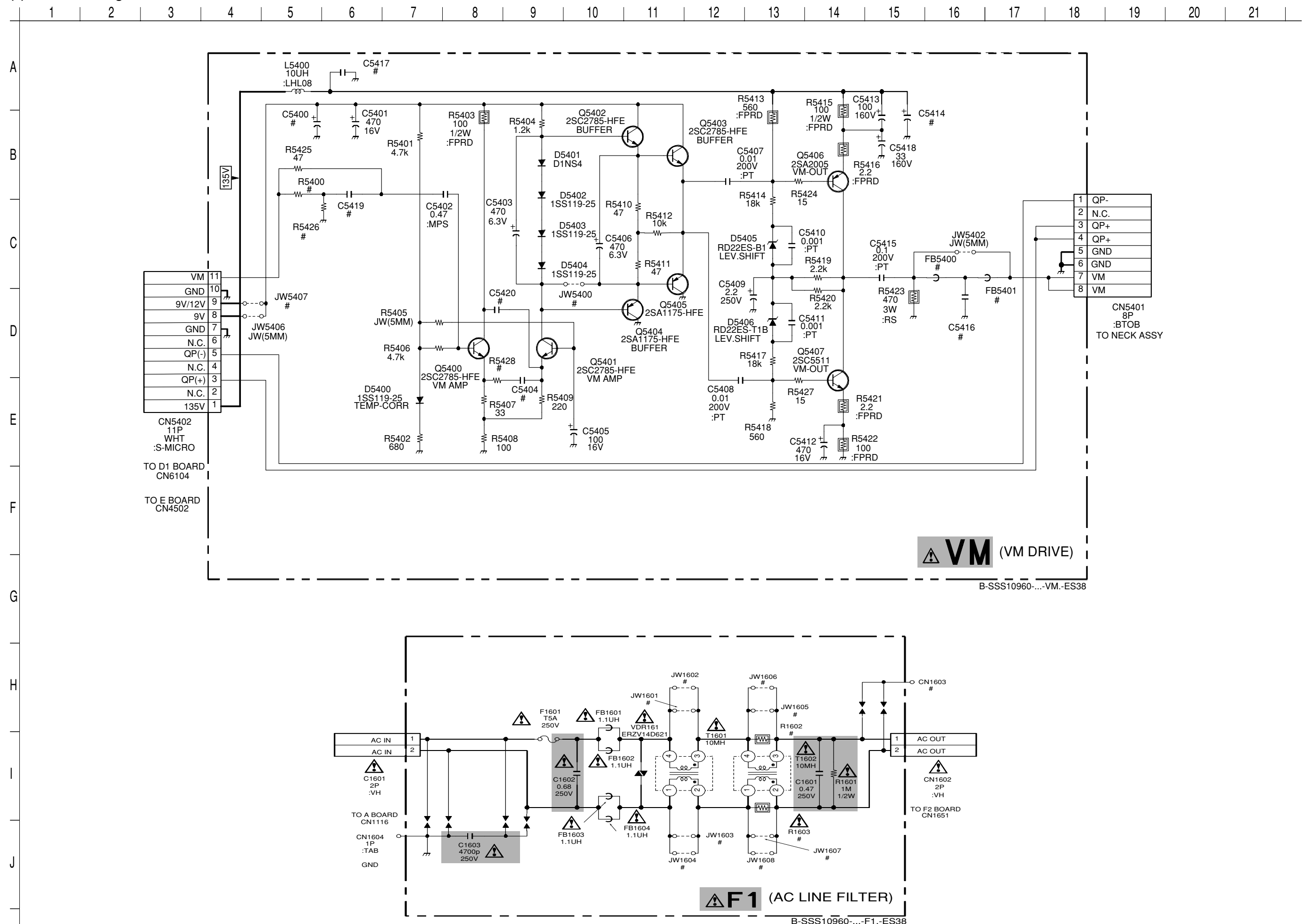
(8) Schematic Diagrams of H1, H3, F2 and SP Boards

H1 (LED, SIRCS RECEIVER)

B-SSS10960-...-H1.-ES38

F2 (AC SWITCH)

B-SSS10960-...-F2.-ES38

H3 (TOP KEY)

B-SSS10960-...-H3.-ES38

SP (SPEAKER CIRCUIT)

B-SSS10960--.-.-SP.-ES38

(9) Schematic Diagrams of DH and H2 Boards

(10) Schematic Diagram of A1 Board

⚠ **A1** (AUDIO DSP)

B-SSS10960-...-A1.-ES38

(11) Schematic Diagram of BC4 Board

⚠ **BC4** (3D DIGITAL COMB FILTER)

○ 5V	A5V
◆ 5V-2	D5V
◇ 3.3V	A3.3V
▫ 3.3V-2	D3.3V
▽ 9V	9V

IC2003 MSM514265C-60JS MEMORY

IC2004 UPD64082GF-3BA 3D COMB/HH DEC

B-SSS10960-...-BC4-ES38

(12) Schematic Diagram of V Board (except KV-ES38N90)

⚠ **V** (TELETEXT)

B-SSS10960-...-V..-ES38

(13) Schematic Diagram of B3 Board

⚠ **B3** (1/6) (DIGITAL REALITY CREATION, MID-X)

IC601
CXD2090Q

IC602
MT48LC1M16A1TG-6S
S-DRAM

IC604
CXA1875AM-T4
I/O EXPANDER

IC603
TLC2932IPWR
PLL

Q601
2SC1623-L5L6

Q602
2SC1623-L5L6

⚠ B3 (2/6) (DIGITAL REALITY CREATION, MID-X)

⚠️**B3** **(3/6)** (DIGITAL REALITY CREATION, MID-X)

B-SSS10960-...-B3(P3)-ES38

⚠ B3 (4/6) (DIGITAL REALITY CREATION, MID-X)

⚠ B3 (5/6) (DIGITAL REALITY CREATION, MID-X)

B-SSS10960-...-B3(P5)-ES38

⚠ **B3** (6/6) (DIGITAL REALITY CREATION,MID-X)

B-SSS10960-...-B3(P6)-ES38

A Board ✳ Mark List

	KV-ES38M31	KV-ES38M61	KV-ES38M90	KV-ES38M91
CN1118	20P	20P	#	20P

Note: The parts indicated as "#" in this circuit diagram are
not listed here, as they are not used for these models.

DH Board ✳ Mark List

	KV-ES38M31	KV-ES38M61	KV-ES38M90	KV-ES38M91
R3805	2K :RN	1.5K :RN	1.2K :RN	1.2K :RN
R3858	20K :RN	18K :RN	18K :RN	18K :RN
R3859	1K :RN	1.5K :RN	2.4K :RN	2.4K :RN

Note: The parts indicated as "#" in this circuit diagram are
not listed here, as they are not used for these models.

D Board ✳ Mark List

	KV-ES38M31	KV-ES38M61	KV-ES38M90	KV-ES38M91
T6803	NX-4601//J1B4	NX-4601//J1J4	NX-4601//J1J4	NX-4601//J1J4

Note: The parts indicated as "#" in this circuit diagram are
not listed here, as they are not used for these models.

7-3. VOLTAGE MEASUREMENT

A BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC001	1	5.0	IC003	1	0		6	4.5
	2	0		2	0		7	4.5
	3	0.1		3	0		8	9.0
	4	<[5.0]>(0)		4	0	IC2200	1	4.5
	5	5.0		5	5.0		2	0
	6	0		6	5.0		3	4.4
	7	0.3		7	0		4	0
	8	0.3		8	5.0		5	4.4
	9	<[0]>(5.0)	IC100	1	4.8		6	0
	10	<[5.0]>(0)		2	4.8		7	4.5
	11	<[0]>(2.4)		3	0		8	9.0
	12	<[0]>(3.2)	IC1201	1	4.4	IC2600	I	12.1
	13	<[0]>(5.0)		2	9.0		G	0
	14	<[0]>(5.0)		3	0		O	9.0
	15	0		4	4.4	IC2601	I	6.8
	16	<[3.2]>(0.2)		5	4.4		G	0
	17	<[2.5]>(2.0)		6	0		O	5.0
	18	<[2.6]>(0)		7	4.4	IC2604	1	3.3
	19	<[5.0]>(0)		8	0		2	2.5
	20	0		9	4.4		3	0
	21	0		10	0		4	1.2
	22	<[0]>(5.0)		11	4.4		5	3.3
	23	0		12	4.4	Q001	B	0
	24	0		13	4.4		C	0
	25	0		14	4.4		E	5.0
	26	<[0]>(5.0)		15	4.4	Q002	B	5.0
	27	<[0]>(0.6)		16	4.4		C	0
	28	0		17	4.4		E	0
	29	<[2.3]>(0)		18	4.4	Q101	B	8.9
	30	<[0]>(5.0)		19	4.3		C	2.1
	31	0		20	4.4		E	2.8
	32	0	IC1203	1	-3.3	Q301	B	0
	33	0		2	-15.8		C	12.0
	34	0		3	✳		E	11.6
	35	<[5.0]>(0)		4	-0	Q313	B	11.6
	36	0		5	-16.6		C	0
	37	0		6	-5.3		E	0
	38	<[2.6]>(0)		7	0	Q1205	B	0
	39	<[2.6]>(0)		8	-18.3		C	0
	40	<[4.8]>(0)		9	-16.1		E	0
	41	5.0		10	7.4	Q1206	B	0.1
	42	0		11	19.1		C	0
	43	0.1		12	0		E	0
	44	0.1		13	0	Q1207	B	5.5
	45	0		14	0		C	0
	46	0		15	0		E	0
	47	<[5.0]>(0)	IC1204	1	0	Q1209	B	0
	48	<[4.0]>(4.5)		2	-8.0		C	0
	49	<[5.0]>(4.3)		3	9.9		E	0
	50	<[4.5]>(3.9)		4	0	Q1210	B	0
	51	0		5	0		C	0
	52	<[2.4]>(0)		6	-15.9		E	0
	53	0		7	0	Q1211	B	0
	54	0		8	-19.0		C	0
	55	0		9	0		E	0
	56	0		10	5.9	Q2200	B	0
	57	0.1		11	19.1		C	0
	58	0		12	-8.0		E	0
	59	0		13	19.1	Q2201	B	0
	60	0		14	-19.0		C	0
	61	0		15	-19.0		E	0
	62	<[0]>(4.5)	IC1205	1	4.5	Q3300	B	3.1
	63	0.3		2	0		C	8.9
	64	<[4.9]>(0)		3	0		E	8.3
IC002	1	<[0]>(0.5)		4	0			
	2	5.0		5	4.5			
	3	0						

A1 BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC8102	I	3.1		16	0		65	3.2
	G	0		17	0		66	0
	O	5.0		18	0		67	3.2
IC8103	1	2.5		19	0		68	0
	2	2.5		20	0		69	0
	3	2.5		21	0		70	3.2
	4	0		22	0.7		71	3.2
	5	0		23	0		72	3.2
	6	4.9		24	3.2		73	3.2
	7	0		25	0		74	3.2
	8	1.4		26	0		75	0
	9	1.4		27	3.2		76	0
	10	3.2		28	3.2		77	3.2
	11	0		29	0		78	3.2
	12	1.6		30	0		79	0
	13	1.2		31	0		80	0
	14	1.2		32	3.2		81	0
	15	4.9		33	3.2		82	0
	16	2.4		34	0.3		83	0
	17	4.9		35	0		84	0
	18	0		36	3.2		85	0
	19	0		37	1.6		86	0
	20	3.2		38	3.2		87	0
	21	0		39	3.2		88	0
	22	0		40	1.6		89	3.2
	23	4.9		41	3.2		90	3.2
	24	0		42	0		91	0.9
	25	2.5		43	2.9		92	3.2
	26	2.5		44	0		93	3.2
	27	2.4		45	0		94	0
	28	2.4		46	0		95	0
IC8104	1	2.2		47	0		96	0
	2	3.2		48	0		97	0
	3	0		49	0		98	1.3
IC8105	1	3.2		50	3.2		99	1.4
	2	3.2		51	0		100	3.3
	3	0		52	3.2	IC8106	1	1.7
	4	0		53	3.2		2	0.3
	5	4.4		54	3.2		3	0.1
	6	4.5		55	3.2		4	0
	7	3.2		56	3.2		5	3.2
	8	3.2		57	3.2		6	1.9
	9	3.2		58	3.2		7	1.9
	10	3.2		59	3.2		8	3.2
	11	3.2		60	3.2	IC8107	1	-3.6
	12	0		61	3.2		2	1.3
	13	0		62	0		3	0
	14	0		63	0			
	15	0		64	3.2			

B3(1/5) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC302	1	0		68	4.7	IC311	I	8.9
	2	3.2		69	1.9		G	0
	3	1.3		70	1.9		O	5
	4	1.3		71	0	IC501	1	0
	5	1.3		72	0		2	0
	6	1.3		73	0.1		3	0
	7	1.3		74	0		4	0
	8	1.3		75	0		5	0
	9	1.3		76	0		6	1.1
	10	1.3		77	0		7	1.1
	11	0		78	0.1		8	1.0
	12	0		79	0.1		9	0.8
	13	0.5		80	0.1		10	1.5
	14	0.5	IC303	1	4.9		11	0
	15	0.5		2	0		12	1.6
	16	0.5		3	0		13	1.4
	17	0.5		4	0		14	3.2
	18	-0.5		5	0		15	0
	19	0.6		6	1.7		16	3.2
	20	0		7	4.4		17	1.4
	21	1.3		8	3.7		18	1.6
	22	3.2		9	0.2		19	1.4
	23	3.2		10	4.9		20	1.6
	24	0		11	0		21	1.8
	25	0.3		12	0		22	1.6
	26	0.3		13	4.9		23	1.7
	27	0		14	4.9		24	1.6
	28	0.1		15	2.2		25	0
	29	0.1		16	2.7		26	4.7
	30	4.7		17	4.9		27	2.4
	31	1.9		18	4.9		28	0
	32	1.9		19	0		29	3.3
	33	1.9		20	0		30	0
	34	1.9		21	0		31	0
	35	4.7		22	0.1		32	0
	36	4.1		23	1.4		33	1.4
	37	4.1		24	0.3		34	0
	38	0		25	0		35	3.2
	39	0.3		26	4.9		36	1.4
	40	0.3		27	0		37	0
	41	4.7		28	4.9		38	0
	42	4.7		29	4.9		39	0
	43	0		30	0		40	0
	44	0		31	0		41	0
	45	0		32	0		42	0
	46	0		33	0		43	0
	47	4.6		34	0		44	0
	48	0		35	0		45	4.7
	49	4.9		36	4.9		46	0
	50	0		37	0		47	0
	51	1.5		38	0		48	0
	52	0		39	4.9		49	0.1
	53	0		40	0		50	0.1
	54	0		41	4.9		51	4.6
	55	0		42	0		52	4.6
	56	0		43	0		53	2.3
	57	4.6		44	1.1		54	2.3
	58	0		45	1.8		55	-0.0
	59	0		46	0		56	1.4
	60	0		47	0		57	-0.1
	61	0		48	0		58	3.1
	62	4.7	IC309	1	0		59	1.4
	63	0.3		2	0		60	1.4
	64	0		3	0		61	3.2
	65	0		4	4.9		62	4.6
	66	1		5	4.9		63	1.9
	67	1.1					64	-0.1

B3(2/5) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC504	1	4.2		51	0		121	1.3
	2	0		52	2.3		122	0
	3	0		53	0		123	1.3
	4	0		54	3.2		124	1.4
	5	0		55	0		125	1.0
	6	0.3		56	0		126	1.1
	7	0		57	3.2		127	1.0
	8	0		58	3.2		128	1.0
	9	0		59	2.7		129	1.1
	10	0		60	0		130	0
	11	0		61	0		131	1.0
	12	1.4		62	0		132	1.1
	13	2.8		63	0		133	0
	14	4.2		64	3.0		134	1.5
IC505	1	0		65	0.4		135	0
	2	3.2		66	0		136	1.7
	3	0		67	3.2		137	1.6
	4	0		68	0		138	1.1
	5	0		69	0		139	0
IC601	1	2.3		70	0		140	1.8
	2	0		71	3.2		141	2.3
	3	0		72	0		142	0
	4	0		73	2.3		143	0
	5	0		74	0		144	0
	6	0		75	0		145	1.2
	7	3.1		76	0		146	1.2
	8	3.1		77	3.2		147	1.5
	9	3.1		78	3.2		148	0
	10	0.5		79	0		149	1.7
	11	3.1		80	0		150	2.0
	12	0		81	3.2		151	1.5
	13	1.3		82	0		152	0
	14	1.4		83	0		153	1.7
	15	1.3		84	3.2		154	1.4
	16	1.1		85	0.3		155	0
	17	1.4		86	3.2		156	0
	18	1.5		87	0		157	3.2
	19	1.6		88	0		158	3.0
	20	1.5		89	0		159	3.1
	21	0		90	0		160	1.3
	22	3.2		91	1.6		161	1.4
	23	0		92	3.0		162	0
	24	1.5		93	2.3		163	0
	25	1.2		94	1.6		164	1.6
	26	1.1		95	3.2		165	1.6
	27	1.1		96	1.8		166	1.6
	28	1.3		97	3.0		167	1.5
	29	1.4		98	3.2		168	1.6
	30	1.4		99	0		169	1.4
	31	1.4		100	0		170	1.5
	32	3.2		101	0		171	1.5
	33	0		102	0.2		172	2.3
	34	0		103	2.3		173	0
	35	0		104	0		174	1.4
	36	0		105	0.3		175	1.5
	37	0		106	1.0		176	1.7
	38	0		107	0.9		177	1.5
	39	0		108	0		178	0.7
	40	0		109	0.5		179	1.0
	41	0		110	2.0		180	1.2
	42	0		111	3.3		181	1.2
	43	2.3		112	0		182	2.4
	44	0		113	0.5		183	0
	45	1.3		114	3.2		184	3.3
	46	0		115	0		185	3.3
	47	0		116	0		186	0
	48	0		117	1.5		187	3.3
	49	0		118	0		188	0
	50	3.2		119	1.7		189	0
				120	1.3		190	0

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B3(3/5) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
	191	0		2	0		41	0
	192	0		3	1.4		42	-0.6
	193	0		4	0		43	-3.0
	194	0		5	1.3		44	-2.0
	195	0		6	1.4		45	-1.9
	196	0		7	0		47	-1.8
	197	2.3		8	0		48	-1.8
	198	0		9	0		49	-1.6
	199	0		10	0		50	-1.6
	200	0		11	0		51	1.2
	201	0		12	1.4		52	1.6
	202	0		13	0		53	1.5
	203	0		14	3.4		54	3.1
	204	0	IC604	1	4.9		55	-0.1
	205	0		2	0		56	1.3
	206	0		3	3.0		57	1.1
	207	3.2		4	3.0		58	1.1
	208	0		5	3.0		59	1.2
IC602	1	3.2		6	0.4		60	1.3
	2	1.5		7	0.3		121	0
	3	1.6		8	0		122	2.5
	4	0		9	0		123	0
	5	1.7		10	3.2		124	1.6
	6	1.5		11	0		125	0
	7	0		12	4.9		126	0
	8	1.2		13	0		127	0
	9	0		14	4.5		128	0
	10	0		15	4.4		129	2.4
	11	0		16	4.9		130	0
	12	0	IC801	1	0		131	0
	13	0		2	0		132	0
	14	0.5		3	0		133	1.6
	15	3.2		4	0		134	1.6
	16	3.1		5	0		135	2.7
	17	0		6	3.2		136	0
	18	0		7	0		137	1.6
	19	0		8	0		138	3.3
	20	0		9	0		139	0
	21	0		10	0.2		140	1.6
	22	0		11	1.4		141	3.2
	23	0		12	1.8		142	2.9
	24	0		13	1.7		143	2.8
	25	0		14	1.4		144	3.0
	26	0		15	2.0		145	2.4
	27	0		16	1.6		146	0
	28	0		17	1.7		147	0
	29	0		18	3.2		148	2.1
	30	0		19	0		149	2.1
	31	0		20	1.6		150	0
	32	0		21	1.7		151	0.2
	33	0		22	1.5		152	1.1
	34	3.2		23	1.3		153	0
	35	1.4		24	1.7		154	0
	36	0.5		25	2.4		155	1.0
	37	0		26	1.7		156	0
	38	3.2		27	1.5		157	1.3
	39	1.6		28	1.4		158	1.5
	40	1.6		29	1.5		159	2.1
	41	0		30	0		160	1.3
	42	1.5		31	1.0		161	0
	43	1.3		32	1.1		162	0
	44	3.2		33	-2.0		163	0
	45	1.1		34	-1.9		164	2.0
	46	1.2		35	-1.9		165	1.2
	47	0		36	-0.8		166	0.7
	48	1.4		37	-2.0		167	0.1
	49	1.4		38	-3.2		168	2.0
	50	0		39	-1.9		169	1.7
IC603	1	0		40	-1.7		170	1.7

B3(4/5) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
	171	0		238	0		66	0
	172	0.6		239	0		67	2.9
	173	0.6		240	0		68	1.6
	174	0	IC802	1	3.2		69	0
	175	0		2	1.4		70	0
	176	0		3	3.3		71	0
	177	0		4	0.8		72	0
	178	0.5		5	0.5		73	0
	179	0.5		6	0		74	0
	180	0.5		7	1.7		75	3.2
	181	1.3		8	0		76	0.9
	182	1.3		9	0.2		77	1.1
	183	0		10	2.0		78	0
	184	1.3		11	0		79	1.9
	185	1.3		12	0		80	1.6
	186	2.4		13	0		81	3.3
	187	0		14	0		82	1.7
	188	2.4		15	0		83	2.0
	189	2.4		16	0		84	0
	190	1.3		17	3.0		85	1.4
	191	0		18	2.8		86	0
	192	1.4		19	3.2	IC901	1	0
	193	3.2		20	2.7		2	0
	194	1.5		21	0		3	1.3
	195	2.4		22	1.6		4	1.2
	196	1.6		23	0		5	0
	197	0		24	0		6	1.4
	198	0		25	0		7	0
	199	0		26	0		8	0
	200	0		27	2.4		9	0
	201	0		28	0		10	0
	202	0		29	3.2		11	0
	203	0		30	0		12	0
	204	0		31	1.5		13	1.3
	205	0		32	0		14	1.3
	206	0.4		33	1.4		15	0
	207	0		34	1.1		16	1.1
	208	1.2		35	3.2		17	1.1
	209	2.4		36	3.2		18	1
	210	1.2		37	1.7		19	0
	211	0		38	0		20	1.1
	212	1.2		39	1.2		21	0
	213	0		40	1.4		22	0
	214	2.4		41	3.2		23	0
	215	0		42	0.8		24	0
	216	0		43	3.2		25	1.5
	217	0		44	0		26	1.9
	218	0		45	0		27	1.5
	219	0		46	0		28	0
	220	0		47	0		29	1.5
	221	2.4		48	0		30	1.7
	222	0		49	0		31	1.2
	223	0		50	0		32	1.2
	224	0		51	1.9		33	1.2
	225	0		52	0		34	0
	226	0		53	1.4		35	0.9
	227	0		54	1.3		36	1.9
	228	0		55	0		37	1.9
	229	0		56	3.2		38	2.3
	230	0		57	0		39	4.7
	231	0		58	0		40	4.7
	232	0.3		59	0		41	4.7
	233	0		60	0		42	0.5
	234	2.4		61	2.4		43	0
	235	0		62	2.4		44	0.3
	236	0		63	1.9		45	0
	237	0		64	1.6		46	0.5
				65	0		47	0
							48	4.9

B3(5/5) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC902	1	0		60	0.1	Q502	B	0
	2	0		61	4.9		C	0
	3	0		62	4.9		E	0
	4	0		63	0	Q503	B	0
	5	0		64	0.1		C	0
	6	0		65	0		E	1.1
	7	0		66	0	Q510	B	0
	8	0		67	0		C	2.6
	9	0		68	0		E	2
	10	0		69	0	Q511	B	0
	11	0		70	0		C	1.7
	12	0		71	4.9		E	1
	13	0		72	4.9	Q512	B	4.7
	14	0		73	0		C	1.6
	15	0		74	4.9		E	1
	16	0		75	0	Q513	B	4.7
	17	0		76	0		C	2
	18	0		77	0		E	2
	19	0		78	0	Q514	B	4.7
	20	0		79	0		C	1.7
	21	0		80	0		E	✳
	22	0		81	0	Q515	B	4.7
	23	4.9		82	0		C	1.8
	24	0		83	4.9		E	0
	25	0		84	4.9	Q517	B	4.9
	26	0		85	1.1		C	4.9
	27	0		86	0		E	4.2
	28	0		87	0	Q521	B	0
	29	4.9		88	0		C	2.6
	30	4.9		89	4.9		E	1.9
	31	0		90	0	Q522	B	4.7
	32	0		91	4.9		C	3.1
	33	4.9		92	0		E	2.5
	34	0		93	2.2	Q523	B	4.7
	35	0		94	0		C	2.5
	36	0		95	4.9		E	1.9
	37	0		96	4.9	Q601	B	0
	38	0		97	4.9		C	0
	39	0		98	4.9		E	0
	40	0		99	4.5	Q602	B	4.9
	41	0		100	4.4		C	0
	42	2.3	IC903	1	0		E	0
	43	2.3		2	0	Q903	B	0
	44	4.9		3	4.9		C	0.1
	45	4.9		4	0		E	0.5
	46	0		5	4.9	Q904	D	3.2
	47	0		6	4.9		G	4.9
	48	1.9		7	4.9		S	3.2
	49	2.4		8	0	Q905	D	3.2
	50	0	IC904	1	0		G	4.9
	51	0		2	0		S	0
	52	0		3	0	Q906	B	4.9
	53	0		4	4.9		C	0
	54	0		5	4.9		E	0
	55	0	Q501	B	0			
	56	0		C	0			
	57	4.9		E	0			
	58	0						
	59	0						

D1 BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC6101	1	3.4		7	1.8	Q6103	B	4.1
	2	1.6		8	2.9		C	4.2
	3	0		9	1.2		E	0
	4	0		10	0.5	Q6104	B	5.2
	5	2.1		11	1.6		C	0.5
	6	0		12	2.3		E	0
	7	2.6		13	5.0	Q6105	B	5.0
	8	5.0		14	0		C	3.4
IC6102	1	8.8		15	5.0		E	2.9
	2	4.3		16	5.0	Q6106	B	-3.3
	3	4.4		17	5.0		C	3.1
	4	4.9		18	0		E	0
	5	0		19	0	Q6107	B	12.4
	6	1.6		20	4.1		C	12.0
	7	1.7		21	4.5		E	5.8
	8	4.8		22	5.0	Q6118	B	3.4
IC6103	1	8.8		23	0		C	0
	2	3.1		24	0		E	0
	3	3.4	IC6351	1	8.8	Q6125	B	8.8
	4	1.9		2	0.3		C	2.1
	5	0		3	4.4		E	2.2
	6	1.7		4	3.8	Q6126	B	0
	7	1.7		5	0		C	2.2
	8	3.4		6	4.6		E	2.1
IC6104	1	1.9		7	4.2	Q6128	B	8.8
	2	2.1		8	5.1		C	1.4
	3	-15.8	IC6353	I	12.4		E	3.2
	4	1.4		G	0	Q6201	B	4.5
	5	6.9		O	5.0		C	0.4
IC6105	1	6.6	IC6354	1	4.4		E	0
	2	4.2		2	0	Q6202	B	2.8
	3	4.4		3	8.8		C	0.7
	4	0		4	0		E	0
	5	1.3		5	4.4	Q6350	B	1.7
	6	1.3		6	4.4		C	0.4
	7	0.2		7	0		E	0
	8	8.8		8	3.9	Q6356	B	1.8
IC6106	1	0	IC6356	1	-3.4		C	0.3
	2	0		2	-3.4		E	0
	3	8.9		3	-3.2	Q6405	B	0
IC6108	1	2.7		4	-3.3		C	4.4
	2	4.9		5	-15.9		E	3.8
	3	0.3		6	0	Q6455	B	8.8
	4	4.7		7	-3.3		C	1.7
	5	3.6		8	-3.2		E	1.1
	6	1.9		9	-3.3			
				10	11.9			

C BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC9001	1	<[0]>(3.4)		6	<[0.1]>(200)		8	0
	2	<[0]>(11.7)		7	<[1.2]>(128)		10	152.0
	3	<[0]>(3.3)		8	<[0]>(153.5)		11	153.6
	4	0		9	<[0]>(128)		12	157.0
	5	<[0]>(8.8)	IC9003	1	<[0]>(3.4)	Q9001	B	0
	6	<[0.1]>(200)		2	<[0]>(11.7)		C	<[0]>(4.5)
	7	<[0.8]>(14.7)		3	<[0]>(3.3)		E	<[0]>(8.2)
	8	<[0.5]>(15.6)		4	0	Q9009	B	0
	9	<[1.0]>(14.7)		5	<[0]>(8.9)		C	0
IC9002	1	<[0]>(3.4)		6	<[0.1]>(200)		E	<[0]>(2.9)
	2	<[0]>(11.7)		7	<[1.2]>(138.6)	Q9010	B	0
	3	<[0]>(3.3)		8	<[0.6]>(152.4)		C	0
	4	0		9	<[1.6]>(138.6)		E	<[0]>(3.4)
	5	<[0]>(8.8)	J9001	5	317	Q9011	B	0
				7	0		C	<[0]>(3.8)
							E	<[0]>(3.2)

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D BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC6602	1	0		2	14.0		C	0
	2	6.0		3	-13.1		E	6.5
	3	4.2		4	-15.8	Q6804	B	6.6
	4	0.0		5	-0.5		C	8.8
	5	18.6		6	14.6		E	6.5
	6	0.0		7	1.3	Q6805	B	77.5
	7	6.2	IC6801	1	6.6		C	-0.3
	8	4.0		2	1.4		E	0
IC6603	1	276		3	2.2	Q6806	B	-0.3
	2	127		4	0		C	65.2
	3	4.3		5	2.9		E	0
	4	0.4		6	6.6	Q6807	B	-0
	5	4.8		7	0.2		C	242
	6	2.2		8	8.8		E	242
	7	3.7	Q6602	B	0.3	Q6808	B	240
	8	3.7		C	12.0		C	240
	9	0		E	0.0		E	240
	10	0	Q6603	B	11.2	Q6809	B	8.3
	11	0		C	11.9		C	3.4
	12	0		E	12.0		E	0
	13	0	Q6604	B	17.7	Q6810	B	135
	14	18.5		C	18.4		C	0
	15	10.9		E	18.6		E	0
	16	4.9	Q6605	B	0.7	Q6811	B	8.8
	17	0.1		C	0.0		C	-0
	18	133		E	0.0		E	-0
	19	123	Q6606	B	17.9	Q6812	B	-0.8
IC6604	1	0		C	18.5		C	8.6
	2	0		E	18.6		E	0
	3	0	Q6609	B	5.0	Q6813	B	5.8
	4	5.8		C	5.0		C	0.4
	5	269		E	0		E	0
	6	✽	Q6610	B	0.5	Q6814	B	2.9
	7	0		C	5.0		C	8.8
	8	0		E	0.2		E	8.8
IC6606	I	9.6	Q6611	B	0	Q6815	B	135
	G	0		C	2.9		C	135
	O	5.0		E	0		E	134
IC6804	I	12.2	Q6612	B	2.9	Q6816	B	0.5
	G	0		C	0		C	0
	O	8.8		E	0		E	0
IC6805	I	14.6	Q6613	B	0	Q6817	B	0.5
	G	0		C	4.1		C	0
	O	11.9		E	0		E	0
IC6806	I	8.1	Q6614	B	0	Q6818	B	0
	G	0		C	-75.6		C	3.2
	VC	6.2		E	0		E	0
	O	21.2	Q6615	B	0.4	Q6819	B	8.8
IC6607	1	134		C	18.6		C	-10.9
	2	2.4		E	0.0		E	-0
	3	10.7	Q6800	B	14.6	Q6820	B	0.1
	4	0		C	0.3		C	0.2
IC6608	1	18.5		E	0.9		E	0
	2	2.9	Q6801	B	0.2	Q6821	B	-10.9
	3	4.9		C	11.1		C	0
	4	0.0		E	-0.5		E	-0.1
	5	18.6	Q6802	B	203			
	6	0.0		C	136			
	7	3.1		E	136			
	8	2.3	Q6803	B	6.6			
IC6800	1	1.3						

E BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC4301	1	3.7		60	0	Q4319	B	1.9
	2	-0		61	4.5		C	6.9
	3	-0		62	4.1		E	6.3
	4	4.7		63	4.2	Q4800	B	-0
	5	3.4		64	3.5		C	-1.7
	6	3.4	IC4800	1	0.2		E	-0
	7	7.6		2	4.4	Q4801	B	3.2
	8	-0		3	4.6		C	2.2
	9	-0		4	0		E	0
	10	0.4		5	4.6	Q4802	B	4.4
	11	1.7		6	3.2		C	1.7
	12	8.9		7	0.3		E	0
	13	-0		8	8.9	Q4803	B	8.9
	14	5.0	IC4801	1	0.2		C	0
	15	2.5		2	4.5		E	4.7
	16	0		3	4.5	Q4804	B	-0
	17	-0		4	0		C	0.3
	18	2.6		5	4.5		E	-0
	19	4.1		6	3.2	Q4805	B	-0
	20	0		7	0.3		C	0
	21	6.0		8	8.9		E	-0
	22	1.5	IC4802	1	0	Q4806	B	3.2
	23	5.3		2	4.4		C	0
	24	-0		3	1.7		E	0
	25	5.1		4	1.7	Q4807	B	4.2
	26	2.6		5	0		C	0.2
	27	3.7		6	4.3		E	-0
	28	2.8		7	4.3	Q4808	B	-0
	29	4.1		8	4.9		C	2.0
	30	2.4	IC4803	1	7.7		E	3.2
	31	3.3		2	*	Q4809	B	-0
	32	8.9		3	0.4		C	2.0
	33	-0		4	0.0		E	3.1
	34	4.6		5	0.8	Q4810	B	8.9
	35	4.7		6	0.7		C	-0.1
	36	4.7		7	6.6		E	-0.1
	37	8.9		8	8.9	Q4811	B	8.9
	38	0	Q4304	B	8.9		C	0
	39	4.8		C	6.9		E	0.3
	40	4.8		E	6.2	Q4812	B	1.4
	41	4.8	Q4307	B	-0		C	-0
	42	-0		C	3.0		E	-0
	43	-0		E	2.3	Q4813	B	0
	44	-0	Q4308	B	-0		C	0.5
	45	6.3		C	3.4		E	1.2
	46	8.9		E	2.8	Q4814	B	0
	47	8.9	Q4310	B	-0		C	1.5
	48	5.2		C	3.2		E	1.6
	49	2.4		E	2.6	Q4815	B	0
	50	3.9	Q4315	B	0		C	1.5
	51	-0		C	1.5		E	0
	52	6.1		E	0	Q4816	B	-0
	53	5.8	Q4316	B	4.9		C	0.6
	54	5.8		C	0		E	0
	55	-0		E	0	Q4817	B	0
	56	5.8	Q4317	B	0		C	2.5
	57	5.8		C	2.7		E	2.2
	58	5.8		E	0			
	59	0.3						

J(1/2) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC8302	1	0.3	IC8306	1	-1.3		20	-1.2
	2	0.8		2	-1.6		21	-1.6
	3	0.3		3	-2.2		22	0
	4	0.8		4	-3.4		23	-1.7
	5	0.8		5	-1.2		24	0
	6	-3.3		6	1.3		25	-0.7
	7	1.3		7	-1.0		26	-0.8
	8	0.3		8	-3.6		27	-0.7
	9	0		9	-3.2		28	-3.6
	10	0.9		10	-2.8		29	[
	11	0.8		11	-1.2		30	-0.7
	12	0.8		12	1.3		31	-1.5
	13	-3.3		13	0.9		32	1.3
	14	1.3		14	0.8		33	0.6
	15	0.3		15	0		34	-0.6
	16	0		16	0		35	-0.6
	17	0.9		17	0		36	0
	18	0		18	0		37	-2.5
	19	0.8		19	-2.2		38	0.3
	20	-3.3		20	-1.1		39	1.9
	21	1.3		21	-1.9		40	-0.2
	22	0.3		22	-1.7		41	-0.2
	24	0.3		23	1.8		42	1.0
	25	0.8		24	-3.6		43	-1.9
	26	0.8		25	-0.8		44	-1.7
	27	-3.3		26	0.9		45	1.1
	28	1.3		27	-0.8		46	-0.7
	29	0.8		28	-3.6		47	-0.7
	30	1.0		29	-0.8		48	1.8
	31	0		30	-0.8	IC8309	1	0.5
	32	-3.6		31	-1.6		2	0
	33	0.8		32	1.3		3	-0.8
	34	✳		33	-0.8		4	0
	35	-3.6		34	-0.7		5	0
	36	0.2		35	-0.7		6	0
	37	0.8		36	-3.6		7	0
	38	0.8		37	-2.5		8	0
	39	0.1		38	0.3	IC8310	1	-2.8
	40	0.8		39	1.7		2	-3.6
	41	1.7		40	3.2		3	-0
	42	5.4		41	2.2		4	-0
	43	0.8		42	0		5	-0
	44	0.6		43	1.7		6	-1.5
	47	0.8		44	2.2		7	-3.6
	48	-3.6		45	4.9		8	1.4
	49	1.1		46	2.3		9	2.1
	50	0.8		47	3.7		10	-3.6
	51	0.8		48	1.7		11	[
	52	0.8	IC8308	1	0.8		12	-3.6
	53	0.7		2	-1.0		13	-3.6
	54	0.1		3	-1.2		14	0.8
	55	0.1		4	-3.4		15	1.4
	56	-0.3		5	1.3		16	-0.9
	57	-3.6		6	0		17	-0.8
	58	0.7		7	-1.0		18	-3.6
	59	0.8		8	-3.6		19	-0.5
	60	1.1		9	3.2		20	4.6
	61	0.8		10	0.7		21	-1.1
	62	0.8		11	-0.5		22	0
	63	0.6		12	0		23	-3.6
	64	0.8		13	1.3		24	-3.6
IC8304	I	5.0		14	0	IC8312	1	-3.6
	G	0		15	-3.6		2	-3.2
	O	0		16	-3.6		3	1.3
IC8305	I	9.0		17	-1.1		4	1.3
	G	0		18	-1.1		5	-3.2
	O	12.3		19	-2.2			

J(2/2) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
Q8302	B	5.4		E	-3.6		C	0.9
	C	0.8	Q8328	B	1.8		E	0
	E	0.2		C	-3.4	Q8343	B	0.7
Q8303	B	5.4		E	-3.6		C	0
	C	0.6	Q8329	B	2.0		E	4.8
	E	0		C	-1.1	Q8346	B	0
Q8304	B	5.4		E	-1.8		C	5.4
	C	0.6	Q8330	B	5.4		E	4.7
	E	0		C	2.0	Q8347	B	4.7
Q8306	B	5.4		E	1.4		C	0
	C	1.7	Q8331	B	2.7		E	-1.1
	E	1.1		C	-1.8	Q8348	B	0
Q8308	B	5.4		E	-0		C	0
	C	0.1	Q8332	B	5.4		E	0
	E	0.4		C	2.7	Q8349	B	4.7
Q8309	B	5.4		E	2.1		C	-0.5
	C	0.8	Q8333	B	2.0		E	-1.1
	E	0.2		C	1.5	Q8350	B	0.7
Q8310	B	-0		E	2.1		C	0
	C	-3.5	Q8334	B	5.4		E	0
	E	-3.5		C	2.9	Q8351	B	4.7
Q8325	B	5.4		E	2.2		C	-0.9
	C	0	Q8335	B	2.0		E	1.5
	E	0		C	1.5	Q8352	B	0
Q8326	B	-0		E	2.2		C	5.4
	C	-3.3	Q8336	B	5.4		E	4.7
	E	0		C	2.9	Q8355	B	5.4
Q8327	B	-3.4		E	2.3		C	0.1
	C	0	Q8342	B	4.8		E	0.4

DH BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC3805	1	3.4	Q3807	B	0
	2	4.1		C	5.0
	3	2.8		E	0
	4	2.8	Q3808	B	5.0
	5	0		C	0
	6	0		E	0
	7	2.8	Q3809	B	0
	8	2.8		C	2.0
	9	2.4		E	2.8
	10	6.7	Q3810	B	2.5
IC3807	1	12.2		C	0
	2	0		E	3.2
	3	2.5	Q3811	B	3.2
	4	2.2		C	6.8
	6	0		E	2.5
	7	5.4	Q3812	B	0
	8	0		C	2.0
				E	2.8

VM BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]
Q5400	B	1.9
	C	8
	E	1.2
Q5401	B	5.0
	C	2.0
	E	1.4
Q5402	B	5.5
	C	8.8
	E	5.8
Q5403	B	5.9
	C	8.9
	E	5.7
Q5404	B	5.0
	C	0
	E	5.5
Q5405	B	5.5
	C	0
	E	5.7
Q5406	B	1.3
	C	0.7
	E	0.9
Q5407	B	134
	C	57
	E	134

V BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC1801	1	0		32	0
	2	0.1		33	0
	3	4.9		34	0
	4	4.9		35	0
	5	0.1		36	4.3
	6	0.1		37	4.9
	7	0.1		38	4.6
	8	0.1		39	4.6
	9	0.1		40	4.9
	10	0		41	4.9
	11	4.9		42	4.9
	12	2.3		43	4.0
	13	2.5		44	4.4
	14	2.3		45	0.2
	15	4.8		46	0
	16	4.9		47	0
	17	4.9		48	0
	18	4.9		49	0
	19	4.9		50	0
	20	4.9		51	4.9
	21	4.9		52	4.9
	22	2.9	IC1802	I	0
	23	4.9		G	6.8
	24	0		O	4.9
	25	2.3	Q1802	B	4.9
	26	4.9		C	0.2
	27	0		E	0.2
	28	4.9	Q1803	B	0
	29	4.9		C	0
	30	2.2		E	0
	31	0			

7-4. WAVEFORMS

B3 BOARD WAVEFORMS

①	②	③	④	⑤
1.7Vp-p (H)	1.0Vp-p (H)	1.1Vp-p (H)	4.7Vp-p (V)	4.9Vp-p (V)
⑥	⑦	⑧	⑨	⑩
2.3Vp-p (V)	2.2Vp-p (V)	2.8Vp-p (V)	3.1Vp-p (V)	0.6Vp-p (H)
⑪	⑫	⑬	⑭	⑮
0.6Vp-p (H)	1.0Vp-p (H)	3.5Vp-p (V)	0.9Vp-p (H)	0.6Vp-p (H)
⑯	⑰	⑱	⑲	⑳
0.5Vp-p (H)	3.7Vp-p (V)	0.6Vp-p	0.1Vp-p (H)	0.6Vp-p

C BOARD WAVEFORMS

① PAL	① SECAM/NTSC	②	③	④
118Vp-p (H)	118Vp-p (H)	117Vp-p (H)	123Vp-p (H)	23.2Vp-p (H)
⑤	⑥	⑦		
4.5Vp-p (H)	4.4Vp-p (H)	4.4Vp-p (H)		

A BOARD WAVEFORMS

①	②	③	④	⑤
5.0Vp-p (V)	4.0Vp-p (V)	0.2Vp-p (V)	0.2Vp-p (V)	0.2Vp-p (V)
⑥	⑦	⑧	⑨	⑩
5.0Vp-p (V)	5.1Vp-p (H)	2.6Vp-p (H)	2.9Vp-p (H)	2.3Vp-p (H)
⑪	⑫			
4.8Vp-p (H)	4.9Vp-p (V)			

D BOARD WAVEFORMS

①	②
0.7Vp-p (H)	28.8Vp-p (H)
③	④
0.9Vp-p (H)	108Vp-p (H)
⑤	⑥
2.4Vp-p (H)	222Vp-p
⑦	⑧
52.4Vp-p (H)	6.7Vp-p (H)
⑨	⑩
3.8Vp-p (H)	1.7Vp-p (H)
⑪	
7.8Vp-p (H)	

D1 BOARD WAVEFORMS

①	②
80Vp-p (H)	0.5Vp-p
③	④
294Vp-p	8.8Vp-p

E BOARD WAVEFORMS

①	②	③	④	⑤
1.5Vp-p (V)	1.4Vp-p (V)	5.0Vp-p (V)	2.4Vp-p	2.4Vp-p

⑥	⑦
2.4Vp-p (H)	7.3Vp-p (V)

J BOARD WAVEFORMS

①	②	③	④	⑤
1.3Vp-p (H)	2.6Vp-p (H)	1.6Vp-p (H)	1.7Vp-p (H)	1.4Vp-p

⑥	⑦	⑧	⑨	⑩
1.4Vp-p (H)	1.0Vp-p (H)	1.4Vp-p (H)	0.3Vp-p (H)	0.5Vp-p (H)

⑪	⑫	⑬	⑭
0.5Vp-p (H)	0.5Vp-p (H)	0.4Vp-p (H)	2.1Vp-p (H)

V BOARD WAVEFORMS

①	②
3.9Vp-p (V)	4.6Vp-p (V)

7-5. PRINTED WIRING BOARDS AND PARTS LOCATION BOARDS

PRINTED WIRING BOARDS

A [MAIN-MICON, TUVIF, AUDIO AMP]

– A Board (Component Side) –

A BOARD (Component Side)

IC	
IC001	C-11
IC002	D-10
IC003	C-11
IC004	C-12
IC1201	E-13
IC1203	F-13
IC1204	B-13
IC1205	F-12
IC2200	E12
IC2600	E-8
IC2601	G-10
IC2603	F-9
IC2604	F-8

TRANSISTOR	
Q001	C-11
Q003	D-10
Q004	D-11
Q005	D-5
Q006	D-5
Q007	D-4
Q1206	D-13
Q1207	C-13
Q1209	D-13
Q1210	D-13
Q1211	D-12

DIODE	
D003	D-12
D004	D-12
D014	D-11
D1208	E-13
D1209	D-11
D2600	G-9

PRINTED WIRING BOARDS

A [MAIN-MICON, TUVIF, AUDIO AMP]

– A Board (Conductor Side) –

SONY

1-675-732-13
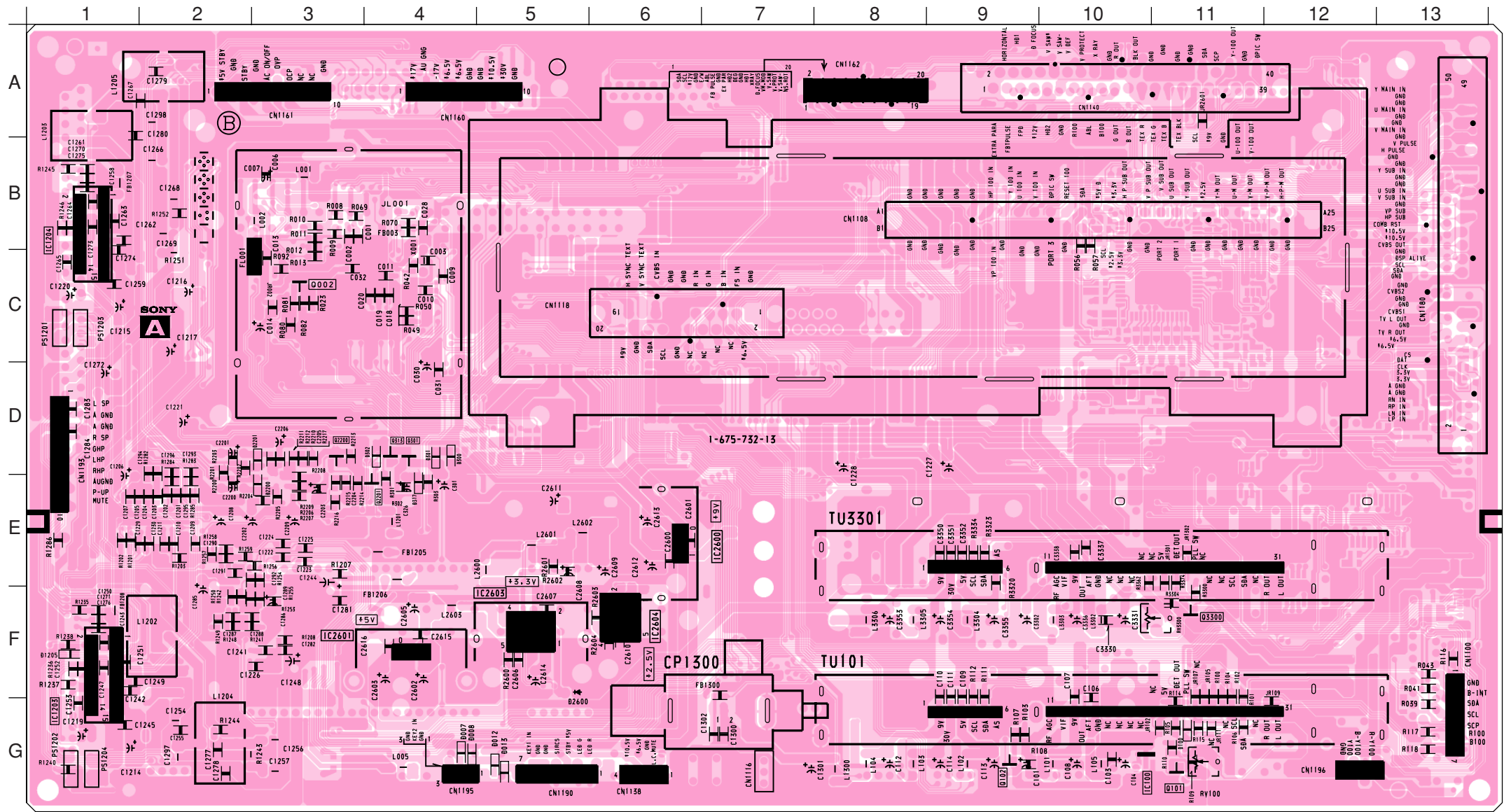
A BOARD	
IC	
IC100	G-10
IC1203	G-1
IC1204	B-1
IC2601	F-3
IC2603	F-5
TRANSISTOR	
Q101	G-11
Q102	G-9
Q301	D-4
Q313	D-4
Q2200	D-3
Q2201	E-4
Q3300	F-11
DIODE	
D007	G-4
D008	G-4
D012	G-5
D013	G-5
D100	G-11
D302	D-3
D317	E-4
D1205	F-1
D2200	E-3
D2201	D-2

• :Pattern from the side which enables seeing.
• :Pattern from the rear side.

PRINTED WIRING BOARD

D [POWER SUPPLY DEFLECTION HV]

– D Board –
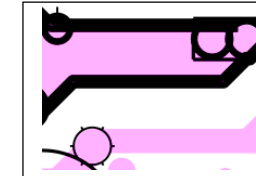
NOTE:
The circuit indicated at left contains high voltage of over 1220 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.

A BOARD
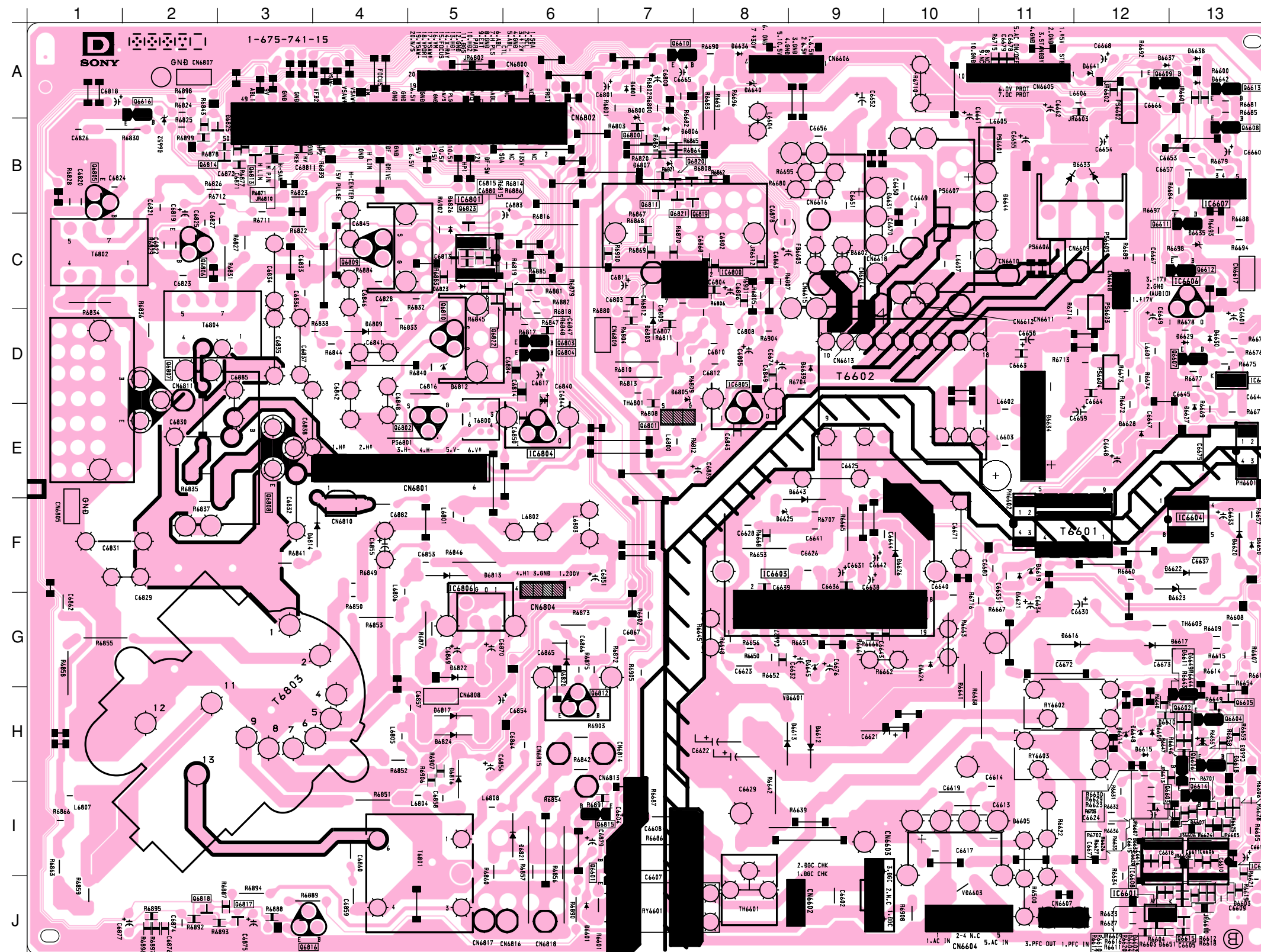
IC		TRANSISTOR		DIODE		D		D	
IC6601	J-12	Q6601	I-6	D6601	J-6	D6607	I-13	D6630	D-13
IC6602	I-13	Q6602	H-13	D6602	J-12	D6608	I-13	D6631	B-10
IC6603	F-8	Q6603	I-12	D6603	J-13	D6609	H-12	D6633	B-12
IC6604	F-13	Q6604	H-13	D6604	J-12	D6610	H-12	D6634	E-11
IC6605	D-13	Q6605	H-13	D6605	I-11	D6611	G-13	D6635	C-13
IC6606	C-13	Q6606	H-13	D6606	I-13	D6612	H-9	D6636	A-8
IC6607	B-13	Q6607	D-13			D6613	H-9	D6637	A-12
IC6608	I-12	Q6608	B-13			D6614	H-12	D6638	A-13
IC6800	C-8	Q6609	A-12			D6615	H-12	D6639	D-9
IC6801	B-5	Q6610	A-7			D6616	G-11	D6640	A-8
IC6804	E-6	Q6611	C-12			D6617	G-13	D6641	A-12
IC6805	D-8	Q6612	C-13			D6619	F-11	D6642	A-13
IC6806	F-5	Q6613	A-13			D6620	F-13	D6643	E-9
		Q6614	I-13			D6621	G-11	D6644	B-11
		Q6615	J-13			D6622	F-13	D6645	G-9
		Q6616	A-2			D6623	G-13	D6648	H-12
		Q6800	B-7			D6624	G-10	D6649	G-13
		Q6801	E-7			D6625	F-8	D6650	F-13
		Q6803	D-6			D6626	F-10	D6651	J-12
		Q6804	D-6			D6627	E-13	D6652	B-2
		Q6805	B-1			D6628	E-12	D6800	A-7
		Q6806	C-2			D6629	D-13	D6801	A-7
		Q6807	D-2					D6802	E-4
		Q6808	F-3					D6803	D-7
		Q6809	C-4					D6805	D-7
		Q6810	D-5					D6806	B-7
		Q6811	B-7					D6807	B-7
		Q6812	H-6					D6808	B-8
		Q6813	B-3					D6809	D-4
		Q6814	B-2					D6812	D-5
		Q6815	I-7					D6813	F-5
		Q6816	J-3					D6814	F-3
		Q6817	J-3					D6816	H-5
		Q6818	J-2					D6817	H-5
		Q6819	B-8					D6820	G-6
		Q6820	B-8					D6821	I-6
		Q6821	B-7					D6822	G-5
		Q6822	D-5					D6823	C-5
		Q6823	B-5					D6824	H-5
								D6825	A-3

PRINTED WIRING BOARD

B3 [DRC, MID, DRC/MID CONTROLLER]   **D1** [DF, DQP DRIVE]

– B3 Board (Component Side) –

– B3 Board (Conductor Side) –
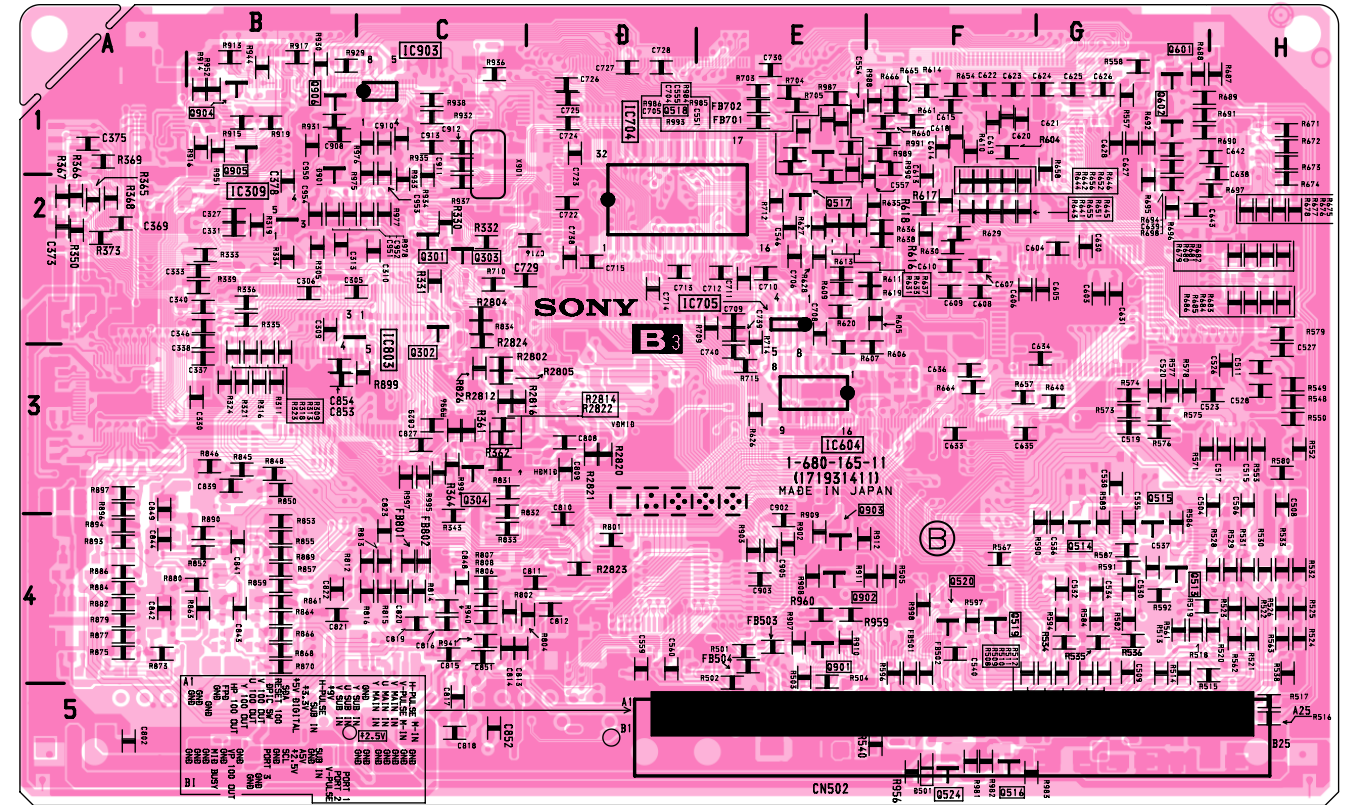
- ▨ :Pattern from the side which enables seeing.
- ▨ :Pattern from the rear side.

– D1 Board –

B3 BOARD (Conductor Side)

IC			
		Q519	D-6
		Q520	D-6
IC304	A-1	Q524	E-6
IC309	B-2	Q601	A-7
IC311	C-1	Q602	A-7
IC604	C-5	Q901	D-5
IC704	A-4	Q902	D-5
IC705	B-4	Q903	C-6
IC803	C-3	Q904	A-2
IC903	A-3	Q905	A-2
		Q906	A-2
TRANSISTOR			
		DIODE	
Q513	D-7		
Q514	D-7	D301	A-7
Q515	C-7	D302	B-5
Q516	E-6	D901	B-11
Q517	B-5		
Q518	A-4		

B3 BOARD (Component Side)

IC		TRANSISTOR	
IC302	C-7	Q501	D-6
IC303	B-8	Q502	E-7
IC305	B-7	Q503	F-6
IC306	B-8	Q510	D-2
IC307	A-7	Q511	F-1
IC308	A-7	Q512	D-2
IC310	A-7	Q521	E-2
IC311	C-8	Q522	E-1
IC501	C-1	Q523	D-1
IC504	A-4	Q907	D-4
IC505	D-5	Q908	D-3
IC506	D-4	Q909	C-4
IC601	I-8	DIODE	
IC602	H-6		
IC603	D-8	D601	I-8
IC701	A-5		
IC801	E-6		
IC802	C-7		
IC901	I-13		
IC902	A-6		
IC904	A-6		

PRINTED WIRING BOARD

J [YCT, COMB FILTER, VIDEO/AUDIO-IN/OUT]

– J Board (Component Side) –

J BOARD (Component Side)

IC		Q8307	C-3	Q8339	C-3
		Q8308	A-6	Q8340	C-5
IC0302	A-8	Q8309	A-6	Q8341	C-5
IC8101	A-12	Q8310	D-7	Q8342	C-4
IC8102	E-13	Q8312	E-3	Q8343	C-4
IC8103	B-13	Q8313	C-5	Q8344	D-8
IC8105	A-13	Q8319	C-7	Q8345	C-3
IC8106	C-12	Q8320	C-7	Q8346	D-4
IC8107	D-12	Q8321	D-7	Q8347	D-4
IC8304	D-12	Q8322	D-4	Q8348	D-5
IC8305	D-11	Q8323	D-5	Q8349	E-3
IC8306	D-7	Q8324	D-4	Q8350	D-4
IC8308	D-2	Q8325	B-6	Q8351	D-9
IC8309	C-6	Q8326	B-6	Q8352	E-9
IC8310	B-7	Q8327	B-6	Q8353	E-5
IC8311	E-3	Q8328	C-6	Q8354	E-5
IC8312	D-7	Q8329	C-7	Q8355	D-5
IC8313	C-2	Q8330	C-7		
IC8314	B-5	Q8331	C-7		
		Q8332	C-7		
TRANSISTOR		Q8333	C-7		
		Q8334	D-9		
Q8302	A-6	Q8335	D-7		
Q8303	A-6	Q8336	D10		
Q8304	B-6	Q8337	E-9		
Q8305	C-3	Q8338	C-3		
Q8306	A-6				

– J Board (Conductor Side) –

J BOARD (Conductor Side)

IC		D8302	B-6
		D8303	B-7
IC8104	B-2	D8304	B-7
IC8313	C-12	D8305	C-6
IC8314	C-10	D8306	B-6
		D8307	B-6
TRANSISTOR		D8308	C-6
		D8309	B-6
Q8301	B-7	D8310	B-5
Q8356	C-7	D8311	C-5
Q8357	D-6	D8313	C-5
Q8358	E-7	D8314	B-5
Q8359	E-6	D8315	A-4
Q8360	E-6	D8316	B-4
		D8317	B-4
DIODE		D8318	C-4
		D8319	C-4
D8101	C-3	D8320	A-4
D8102	C-3	D8321	B-6
D8301	A-4	D8325	A-4

- :Pattern from the side which enables seeing.
- :Pattern from the rear side.

PRINTED WIRING BOARD

E [RGB OUT, DEFLECTION] **A1** [AUDIO DSP]

– E Board (Component Side) –

– E Board (Conductor Side) –

J BOARD (Component Side)

IC		Q4818	A-5
		Q4820	B-5
IC4301	C-2	Q4821	C-5
IC4800	A-4	Q4826	D-4
IC4801	C-4	Q4906	B-3
IC4802	B-5	Q4907	B-3
IC4803	D-4	Q4908	B-3
		Q4909	B-3
TRANSISTOR		Q4910	B-3
		Q4808	B-4
Q4303	D-3	**DIODE**	
Q4304	C-1		
Q4305	B-2		
Q4307	B-2	D4302	B-2
Q4308	B-2	D4303	B-3
Q4310	B-2	D4304	B-3
Q4319	C-1	D4305	B-1
Q4320	D-1	D4308	D-3
Q4321	D-1	D4309	D-3
Q4322	D-2	D4802	C-5
Q4800	B-4	D4803	C-5
Q4804	B-5	D4804	D-5
Q4805	B-4	D4805	B-4
Q4807	C-5	D4811	A-3
Q4810	B-5	D4812	A-4
Q4811	B-5	D4815	A-4
Q4813	A-4	D4816	C-5
Q4815	B-5	D4817	A-4
Q4816	A-3	D4900	B-3
Q4817	A-4	D4901	B-3

J BOARD (Conductor Side)

IC		DIODE	
IC4800	B-2	D4301	C-3
IC4801	C-2	D4302	B-3
IC4802	B-1	D4303	B-2
IC4803	C-2	D4311	B-4
		D4312	B-5
TRANSISTOR		D4313	A-4
		D4314	C-4
Q4301	A-3	D4800	B-1
Q4302	B-3	D4801	C-1
Q4315	C-3	D4802	B-1
Q4316	B-4	D4803	C-1
Q4317	B-4	D4804	D-1
Q4318	D-3	D4806	A-1
Q4801	B-2	D4808	B-1
Q4802	B-2	D4809	A-3
Q4803	A-2	D4811	A-3
Q4806	B-1	D4812	A-2
Q4809	B-1	D4813	B-3
Q4812	A-1	D4814	B-3
Q4814	A-1	D4815	A-2
Q4822	C-1	D4816	C-1
Q4823	D-1	D4817	A-2
Q4824	D-2	D4818	A-2
Q4825	D-1	D4900	B-3
		D4901	B-3

– A1 Board (Component Side) –

– A1 Board (Conductor Side) –

A1 BOARD (Component Side)

IC	
IC8102	B-1
IC8104	A-2
IC8105	B-4
IC8106	B-3
IC8108	B-1

• ▬ :Pattern from the side which enables seeing.
• ▬ :Pattern from the rear side.

PRINTED WIRING BOARDS

C [CRT DRIVE]   **F1** [AC LINE FILTER]   **VM** [VM DRIVE]   **H1** [LED, SIRCS RECEIVER]   **H3** [TOP KEY]   **SP** [SPEAKER CIRCUIT]
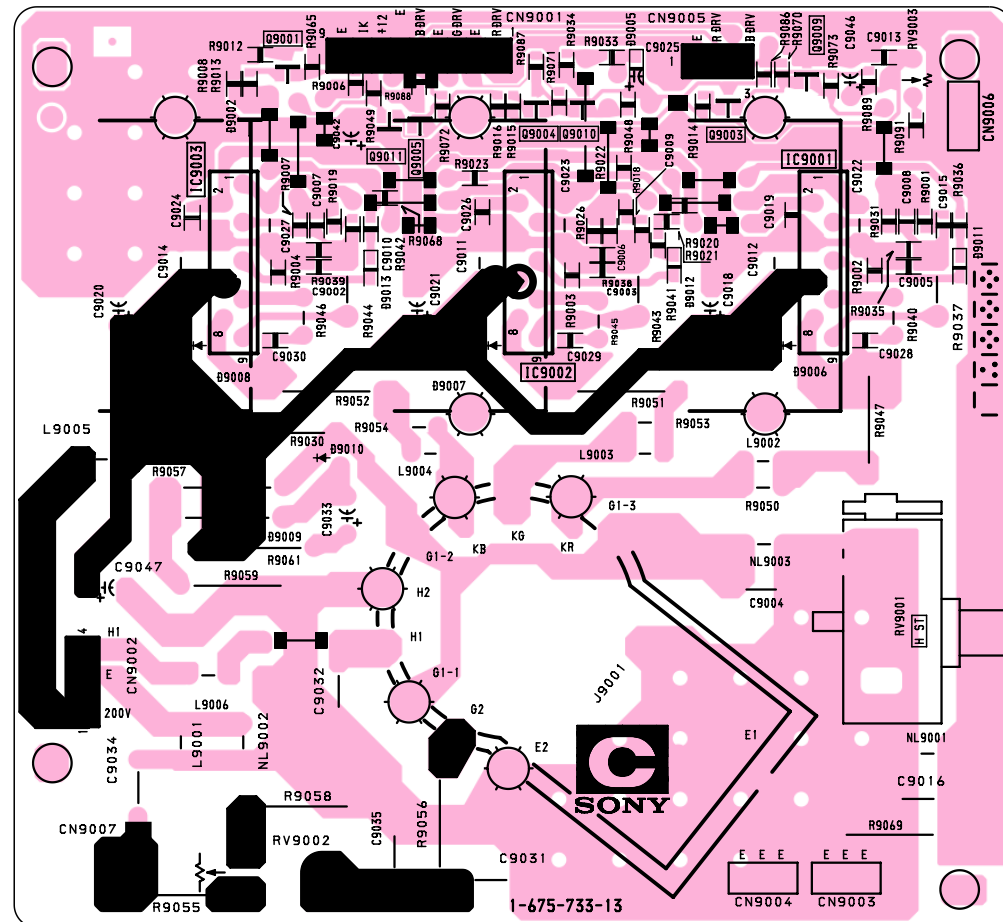
– C Board –
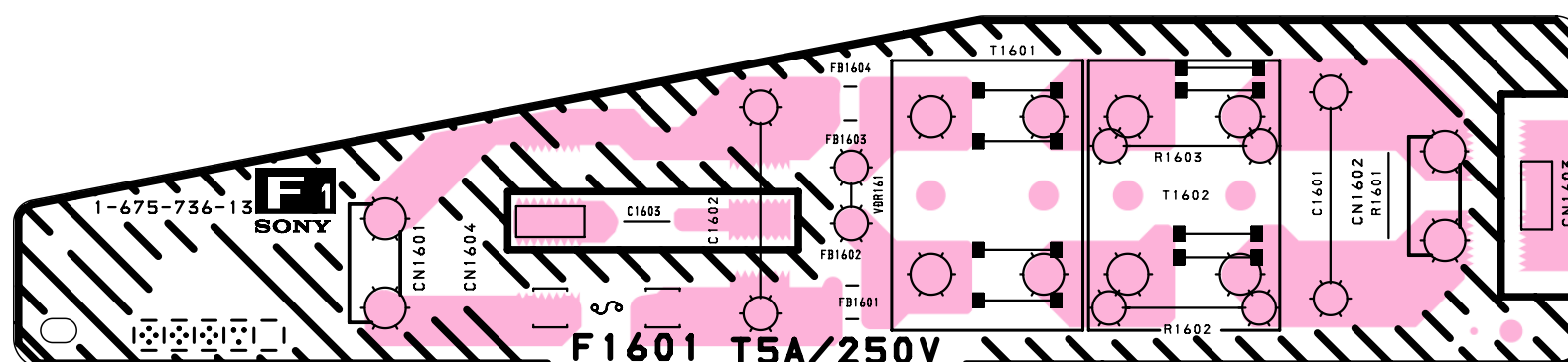
– VM Board –
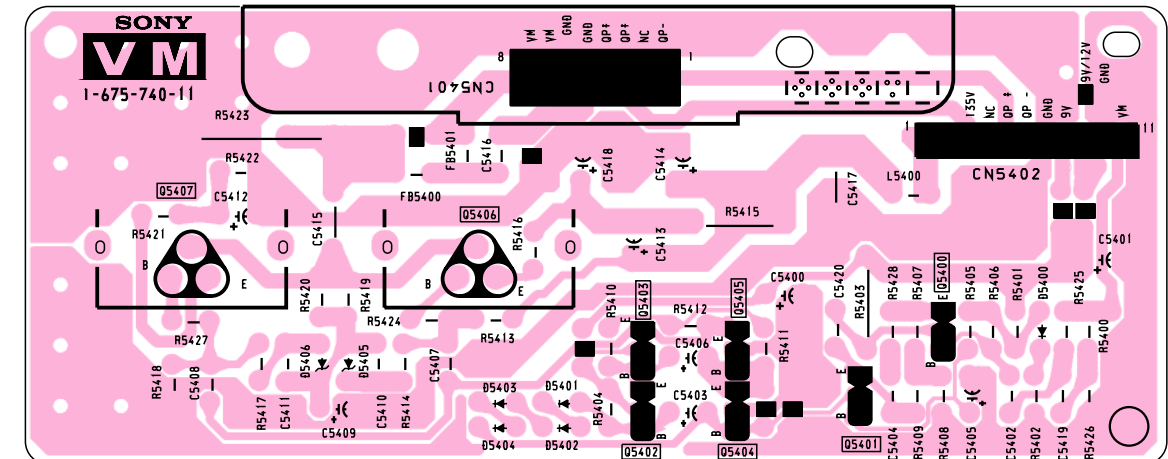
– H3 Board –

– H1 Board –

– SP Board –

– F1 Board –

PRINTED WIRING BOARDS
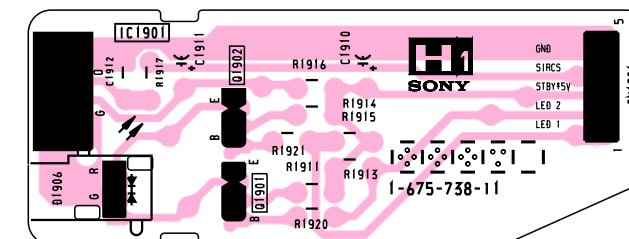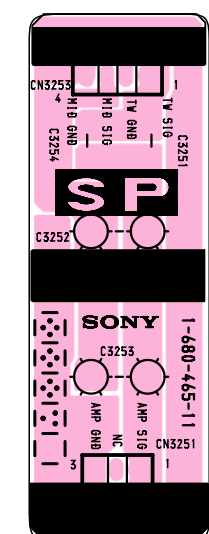
BC4 [Y/C SEP]   **DH** [MAGNETIC FIELD CORRECTION]   **V** [TELETEXT] (KV-ES38M31/M61/M91)   **H2** [AV INPUT, PRESET KEY, PHONE OUT]   **F2** [AC SWITCH]

– BC4 Board –

– DH Board –
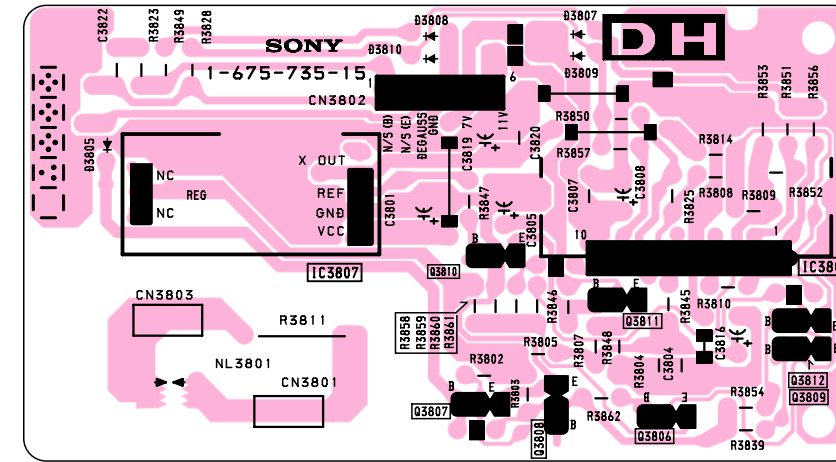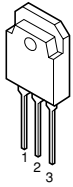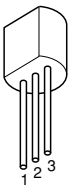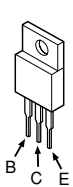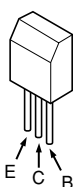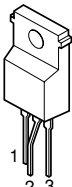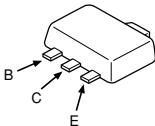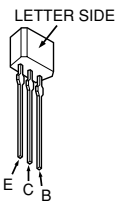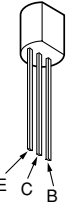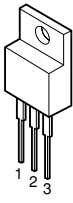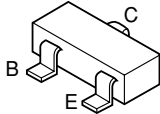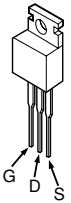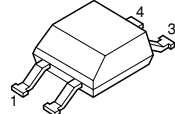
– V Board –

– H2 Board –

– F2 Board –
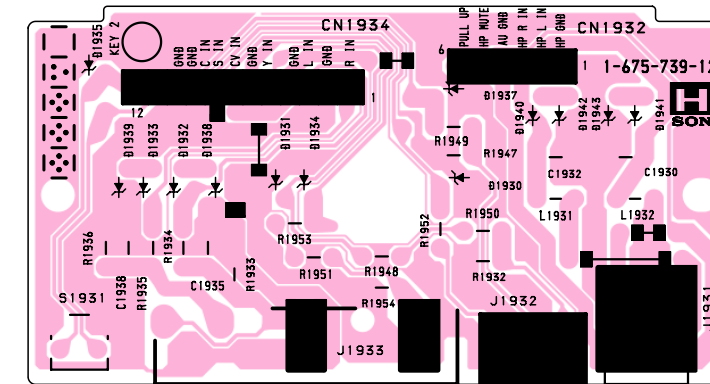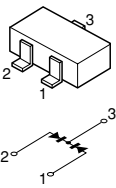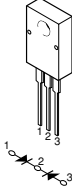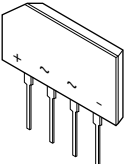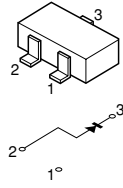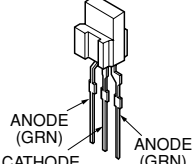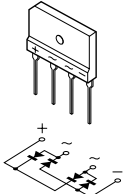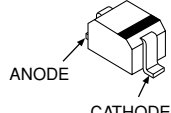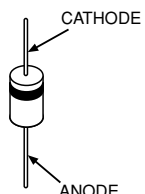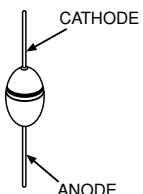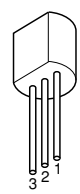
7-6. SEMICONDUCTORS

TRANSISTOR

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DTC144ESA 2SC2785-HFE 2SA1175-HFE DTA144ESA DTC114ESA	2SC2500-B	2SC3480(3) IRF1830G-LF49	DTC144EKA 2SC1623-L5L6 2SA1162-G 2SA1037AK-T146 2SC2712-YG 2SD2114K 2SD601A-Q-TX DTC114EK 2SB709A-QRS-TX	IRF620	D10SBS4F
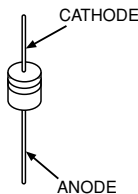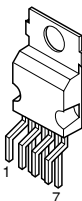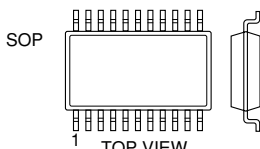
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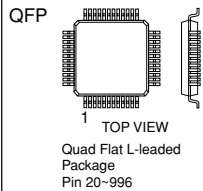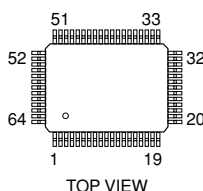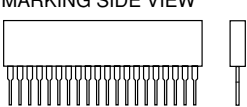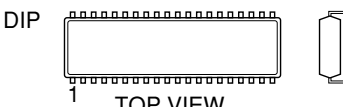
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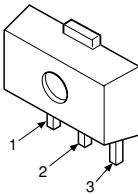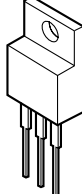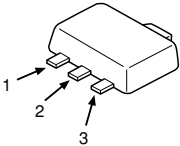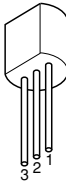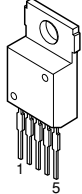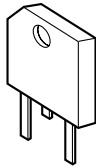
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IC
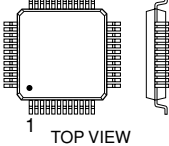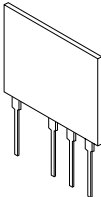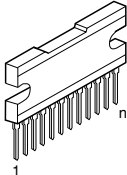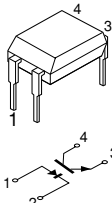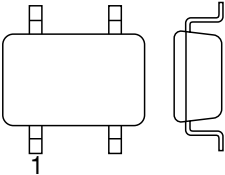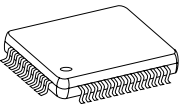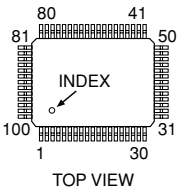
CATHODE / ANODE		RD18ESB	STV9379	SOP — Single In-line Package Pin 8~98	
D1NS4 RD10ESB2 RD2.7ESB2 RD5.6ES-B1 ERA85-009 RD2.2ES-B2 RD3.9ES-B2 RD4.7ESB2 RD5.6ESB2	RD15ES-B2 ERA38-06 RD22ES-B1 RD3.6ES-B1 RD6.8ES-B1 RD7.5ES-B2 RD12ES-B1 RD13ES-B1 RD15ES-B1	RD18ESB RD30ESB2	STV9379	CXA1875AM-T4 CXA1211M M24C04-WMN6T MB81F161622C-80 M24C08-MN6T M24C08-MN6T(A) MB88141APF-ER MM115XFBE	NJM4560M TLC2932IPWR TLC2932IPWR TLC2933IPWR-12 TDA7315D013TR TDA9178T/N1.118 UPC4558G2
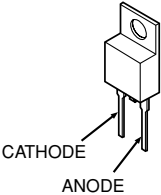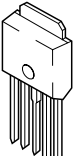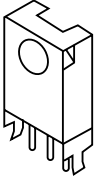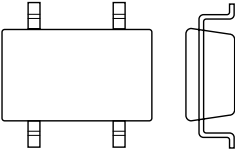
QFP — Quad Flat L-leaded Package Pin 20~996	TOP VIEW	MARKING SIDE VIEW — Single In-line Package Pin 6~99		DIP — Dual In-line Package Pin 6~98	
CXD2090Q CXD9509AQ	CXP750096-035Q CXA2100AQ CXA2069Q PQ5EV3 TLC5733AIPM	MCR5152 TDA7481		CA0007AD CA0005AD LM393N NJM3404AD-W T0P209P UPC358C	

S-80743AL-A7-S TA78L05S	BA09T BA12T PQ1CG2032F2 TA7805S 2SC5511	LF90CDT-TR LF50CDT-TR S-80743AN-D7 S-80827ANUP-EDQ	MM1431ATT MSM514265C-60JS	LA6500-FA LA6510	BA05T

TOP VIEW		TOP VIEW			
LM393N		CXD2309Q UPD640829F-3BA	DM-58	MCR5152	ON3171-R

– 148 –

PST9145NL		CXA2123AQ-T6 SDA5254-2B006	AK4524 TC7WU04F UPC358C		MB94918RPF- TC9446F-002

D5S4M	PQ37Z534	SBX1981-51RP	PST9120NL		

SECTION 8
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

> The components identified by shading and mark ⚠ are critical for safety.
> Replace only with part number specified.

8-1. SPEAKER BRACKET

■ : 7-685-663-71   SCREW +BVTP 4 × 16
▲ : 7-685-664-79   SCREW +BVTP 4 × 20
● : 7-685-648-79   SCREW +BVTP 3 × 12
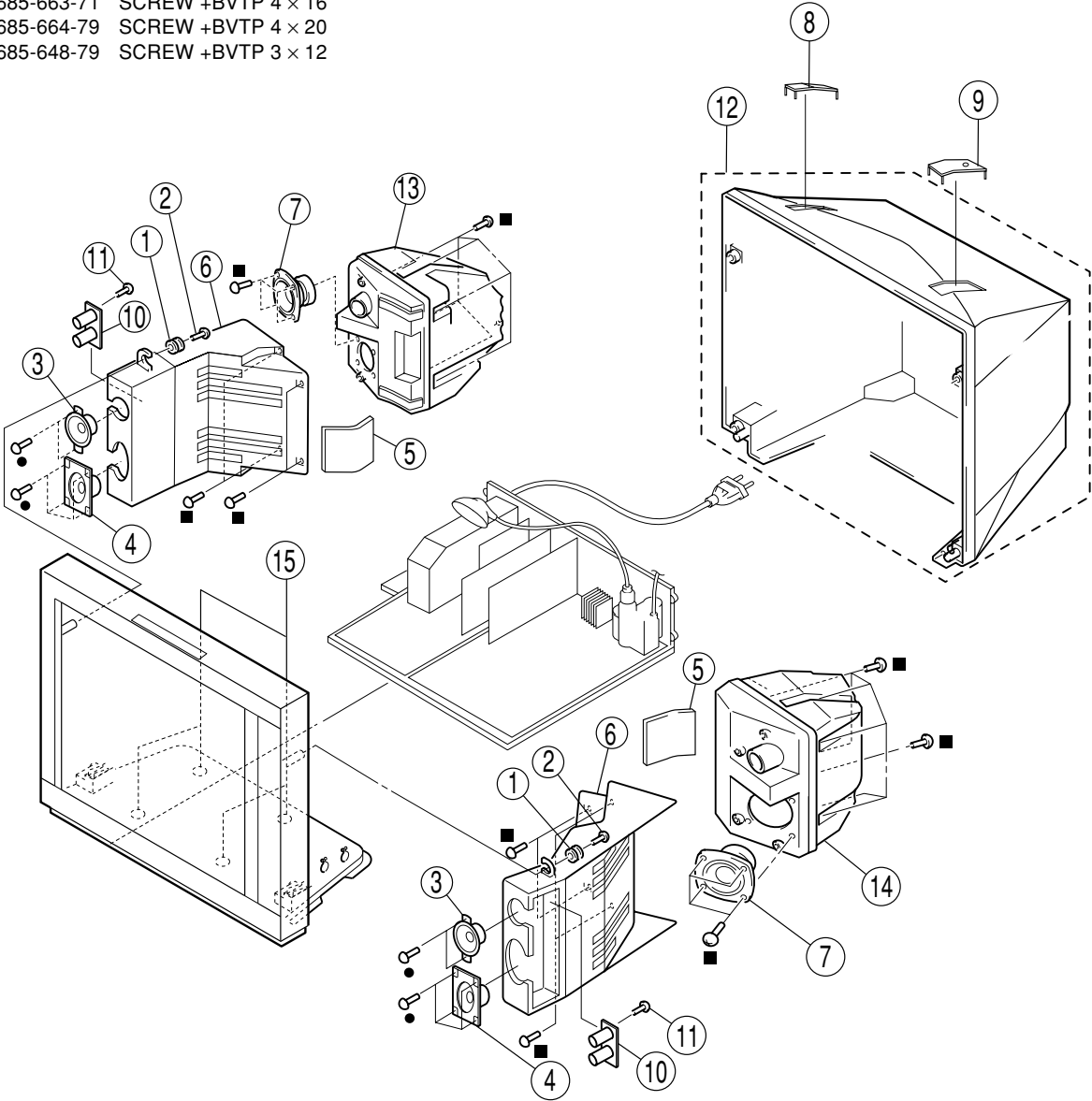
REF. NO.	PART NO.	DESCRIPTION	REMARK
1	4-374-745-11	CUSHION A	
2	4-064-929-02	SCREW, TP + TWH 4 x 25	
3	1-529-940-11	SPEAKER (5 cm)	
4	1-529-939-11	SPEAKER (9 x 5 cm)	
5	∗ 4-073-084-02	DUCT CUSHION	
6	∗ 4-079-164-01	DUCT SPEAKER	
7	1-505-473-11	SPEAKER (12 cm)	
8	4-079-337-01	COVER, SCREW (L)	
9	4-079-336-01	COVER, SCREW (R)	
10	A-1391-163-A	SP BOARD MOUNT	

REF. NO.	PART NO.	DESCRIPTION	REMARK
11	4-046-797-01	SCREW (3 x 12), (+) BVTAP	
12	X-4038-430-2	COVER ASSY, REAR	(▲ 10 screws)
13	A-1501-818-A	SP BOX (L) SUB ASSY	
14	A-1501-820-A	SP BOX (R) SUB ASSY	
15	4-081-847-01	FOOT	

8-2. CHASSIS

● : 7-685-648-79 SCREW +BVTP 3 × 12
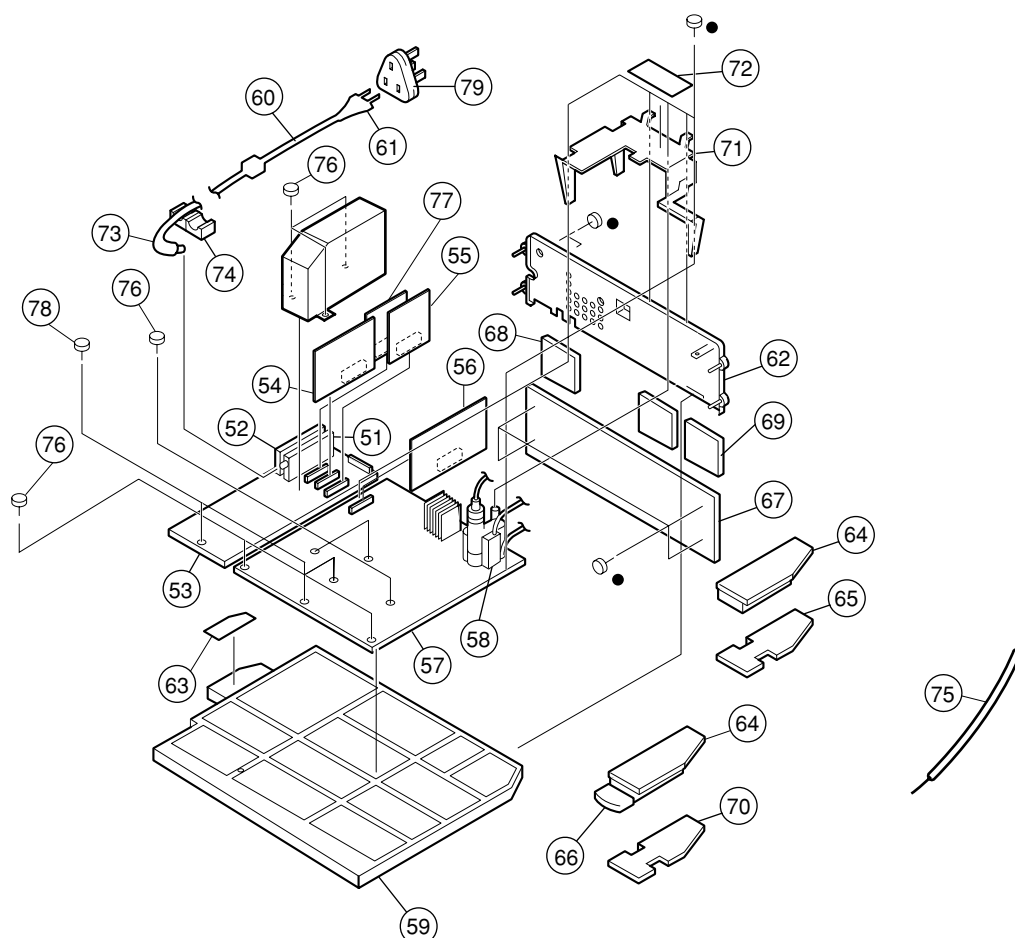
REF. NO.	PART NO.	DESCRIPTION	REMARK
51	8-598-452-30	TUNER, FSS BTF-WG442	
52	8-598-508-10	TUNER, FSS BTF-LG436	
53	* A-1299-594-A	A BOARD COMPLETE (except KV-ES38M90)	
	* A-1299-592-A	A BOARD COMPLETE (KV-ES38M90 only)	
54	* A-1136-251-A	B3 BOARD COMPLETE	
55	* A-1333-173-A	E BOARD MOUNT	
56	* A-1333-171-A	D1 BOARD MOUNT	
57	* A-1348-119-A	D BOARD COMPLETE (KV-ES38M31 only)	
	* A-1348-113-A	D BOARD COMPLETE (except KV-ES38M31)	
58	⚠ 1-453-360-11	TRANSFORMER ASSY, FLYBACK (NX-4601//J1J4) (KV-ES38M61/M90/M91)	
	⚠ 1-453-332-21	TRANSFORMER ASSY, FLYBACK (NX-4601//J1B4) (KV-ES38M31)	
59	* 4-071-314-03	BRACKET, MAIN	
60	⚠ 4-022-115-01	HOLDER, AC CORD	
61	⚠ 1-757-345-11	CORD, POWER (WITH FILTER) (KV-ES38M31 only)	
	⚠ 1-791-439-11	CORD, POWER (WITH CONNECTOR) (KV-ES38M61/M91)	
	⚠ 1-590-501-21	CORD, POWER (WITH NOISE FILTER) (KV-ES38M90 only)	

REF. NO.	PART NO.	DESCRIPTION	REMARK
62	* 4-071-315-02	BRACKET, TERMINAL	
63	* A-1241-509-A	F1 BOARD MOUNTED	
64	* 4-071-307-03	HOLDER, F2/H1	
65	* A-1377-035-A	H1 BOARD MOUNT	
66	4-071-305-03	BUTTON, POWER	
67	* A-1395-041-A	J BOARD COMPLETE	
68	* A-1299-593-A	A1 BOARD COMPLETE	
69	* A-1136-252-A	BC4 BOARD COMPLETE	
70	* A-1241-510-A	F2 BOARD MOUNT	
71	* 4-071-316-02	SUPPORTER, PWB	
72	* A-1333-176-A	DH BOARD MOUNTED (KV-ES38M31 only)	
	* A-1333-175-A	DH BOARD MOUNTED (KV-ES38M61 only)	
	* A-1333-172-A	DH BOARD MOUNTED (KV-ES38M90/M91)	
73	1-790-082-11	CABLE RF	
74	1-543-653-11	CORE ASSY, BEAD (DIVISION TYPE)	
75	1-900-252-15	LEAD ASSY, G2 (KV-ES38M31 only)	
	1-900-255-46	LEAD ASSY, G2 (except KV-ES38M31)	
76	4-302-428-03	SCREW(WASHER HEAD)(+P3 x 12)	
77	* A-1342-626-A	V BOARD MOUNT (except KV-ES38M90)	
78	4-046-797-01	SCREW(3 x 12),(+)BVTAP	
79	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (KV-ES38M90 only)	

KV-ES38M31/ES38M61/ES38M90/ES38M91
RM-916

8-3. PICTURE TUBE

▲: 7-685-103-19 SCREW +P 2 × 5
○: 7-685-152-19 SCREW +P 3 × 25
●: 7-685-648-79 SCREW +BVTP 3 × 12
■: 7-685-663-71 SCREW +BVTP 4 × 16
◆: 7-685-661-14 SCREW +BVTP 4 × 12
▲: 7-685-664-79 SCREW +BVTP 4 × 20
▼: 7-682-262-04 SCREW +K 4 × 10
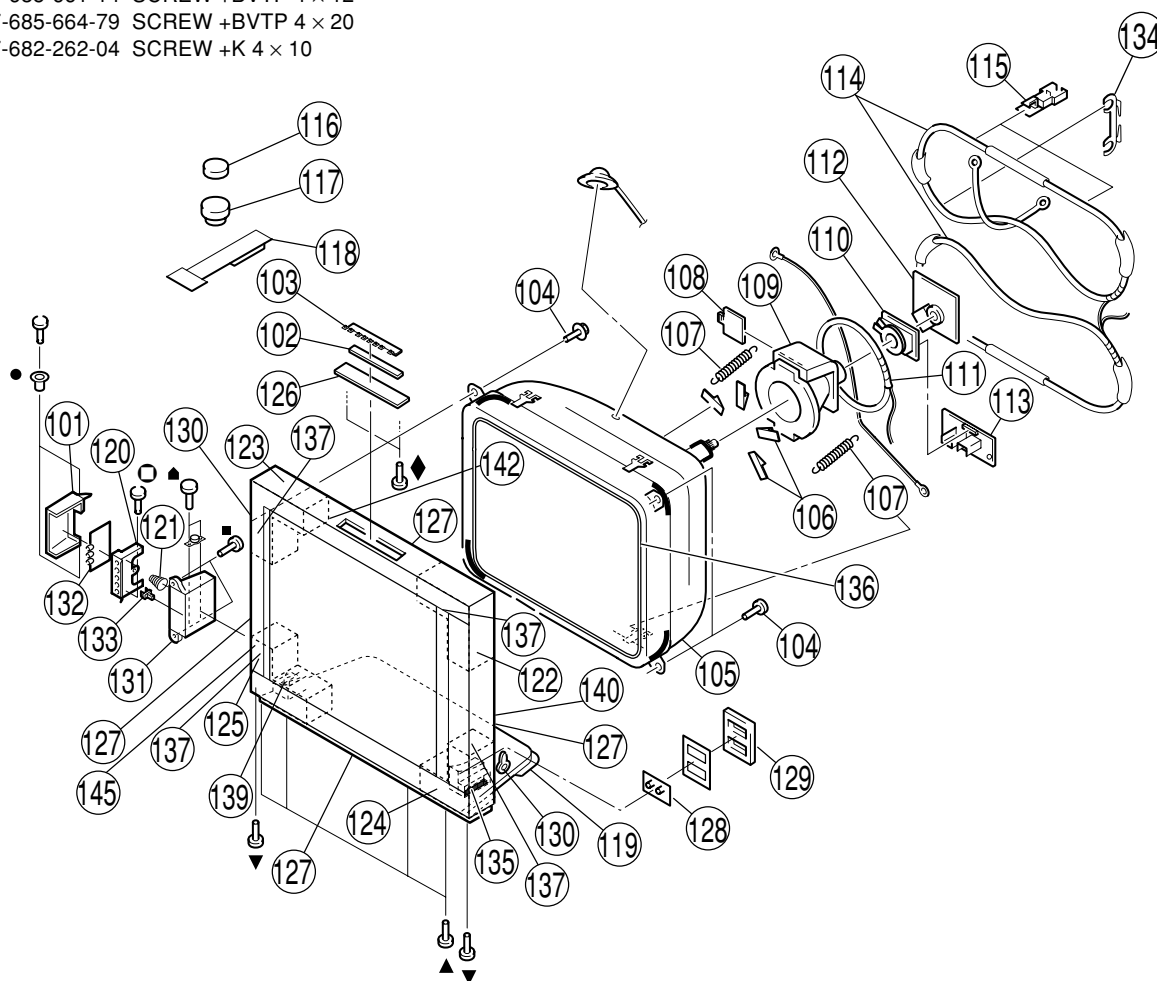
REF. NO.	PART NO.	DESCRIPTION	REMARK
101	4-071-308-02	DOOR, CONTROL	
102	* A-1372-730-A	H3 BOARD MOUNTED	
103	4-071-312-03	BUTTON, TOP SW	
104	4-046-765-12	SCREW, TAPPING 7+CROWN WASHER	
105	⚠ 8-735-091-05	PICTURE TUBE (A90LPW80X) (KV-ES38M31)	
	⚠ 8-735-080-05	PICTURE TUBE (A90LPW80X) (KV-ES38M61)	
	⚠ 8-735-090-05	PICTURE TUBE (A90LPW80X) (KV-38M90/M91)	
106	3-703-961-01	SPACER, DY	
	4-082-357-11	SPACER, DY	
107	* 4-369-318-61	SPRING, TENSION	
108	2-163-920-01	PLATE, TLH CORRECTION	
109	⚠ 1-451-528-12	DEFLECTION YOKE (Y38RSC2)	
110	8-453-007-31	NA324-M3	
111	1-452-896-61	COIL, NA ROTATION (RT200)	
112	* A-1332-227-A	C BOARD MOUNTED	
113	* A-1342-625-A	VM BOARD MOUNTED	
114	⚠ 1-419-845-11	COIL, DEGAUSSING	
115	* 4-080-511-01	CLIP, DGC	
116	1-452-032-00	MAGNET, DISC	
117	1-452-094-00	CIRCULAR DISC MAGNET B	
118	4-051-734-42	PIECE B(120), CONV. CORRECT	
119	* 4-079-159-01	COVER, FRONT	
120	* X-4037-280-2	HOLDER ASSY, CONTROL	

REF. NO.	PART NO.	DESCRIPTION	REMARK
121	4-071-323-01	SPRING, CONE	
122	* 4-079-161-02	BRACKET (TR), CRT	
123	* 4-079-160-02	BRACKET (TL), CRT	
124	* 4-079-163-02	BRACKET (BR), CRT	
125	* 4-079-162-02	BRACKET (BL), CRT	
126	* 4-071-311-02	HOLDER, H3	
127	X-4038-425-2	FRAME ASSY	
128	* 4-071-306-01	LIGHT, GUIDE	
129	* 4-072-950-01	BRACKET, LIGHT GUIDE	
130	4-073-080-01	FASTEN	
131	* 4-071-310-04	BRACKET, SIDE	
132	* A-1377-036-A	H2 BOARD MOUNTED	
133	4-047-464-01	CATCHER, PUSH	
134	* 4-054-297-01	HOLDER, DGC	
135	* 4-071-673-01	SHEET, COVER	
136	* 1-419-844-11	COIL, LANDING CORRECTION	
137	4-072-956-01	SCREW SPECIAL (DIA.8) (+TP 4 X 9)	
138	X-4038-426-1	FRAME SUB ASSY, TOP	
139	X-4038-427-1	FRAME SUB ASSY, BOTTOM	
140	X-4038-428-1	FRAME SUB ASSY, RIGHT	
141	X-4038-429-2	FRAME SUB ASSY, LEFT	

SECTION 9
ELECTRICAL PARTS LIST

A

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

REF NO.	PART NO.	DESCRIPTION			REMARK
*	A-1299-594-A	A BOARD COMPLETE			
		(KV-ES38M31/ES38M61/ES38M91)			
*	A-1299-592-A	A BOARD COMPLETE (KV-ES38M90)			
		********************			
*	1-555-110-00	CABLE, PIN			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C001	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C002	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C004	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C005	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C006	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C007	1-126-933-11	ELECT	100UF	20.00%	16V
C009	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C010	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C012	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C013	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C014	1-126-947-11	ELECT	47UF	20.00%	16V
C015	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C016	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C017	1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C018	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C019	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C020	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C021	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C024	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C028	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C031	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C032	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C033	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C034	1-163-259-91	CERAMIC CHIP	220PF	5.00%	50V
C103	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C104	1-126-933-11	ELECT	100UF	20.00%	16V
C107	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C108	1-126-933-11	ELECT	100UF	20.00%	16V
C109	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C110	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C111	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C112	1-126-933-11	ELECT	100UF	20.00%	16V
C113	1-126-947-11	ELECT	47UF	20.00%	16V
C114	1-126-967-11	ELECT	47UF	20.00%	50V
C301	1-126-767-11	ELECT	1000UF	20.00%	16V
C326	1-126-964-11	ELECT	10UF	20.00%	50V
C1201	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C1202	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C1203	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C1204	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C1205	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C1206	1-126-965-91	ELECT	22UF	20.00%	50V

REF NO.	PART NO.	DESCRIPTION			REMARK
C1207	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C1208	1-126-023-11	ELECT	100UF	20.00%	16V
C1209	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C1210	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1211	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V
C1212	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1213	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V
C1214	1-126-055-11	ELECT	470UF	20.00%	50V
C1215	1-126-055-11	ELECT	470UF	20.00%	50V
C1216	1-126-943-11	ELECT	2200UF	20.00%	25V
C1217	1-126-943-11	ELECT	2200UF	20.00%	25V
C1219	1-126-961-11	ELECT	2.2UF	20.00%	50V
C1220	1-126-961-11	ELECT	2.2UF	20.00%	50V
C1221	1-126-933-11	ELECT	100UF	20.00%	16V
C1222	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1223	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1224	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1225	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1229	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1230	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C1241	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1242	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1243	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1244	1-110-617-51	ELECT	2200UF	20.00%	50V
C1245	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1246	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C1247	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1248	1-110-617-51	ELECT	2200UF	20.00%	50V
C1249	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C1251	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C1252	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1253	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1254	1-136-165-00	FILM	0.1UF	5.00%	50V
C1255	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C1256	1-137-194-81	FILM	0.47UF	5.00%	50V
C1258	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1259	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1260	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C1262	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C1263	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C1264	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1265	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1266	1-136-165-00	FILM	0.1UF	5.00%	50V
C1267	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C1268	1-137-194-81	FILM	0.47UF	5.00%	50V
C1270	1-163-007-11	CERAMIC CHIP	680PF	10.00%	50V
C1271	1-163-007-11	CERAMIC CHIP	680PF	10.00%	50V
C1272	1-126-941-11	ELECT	470UF	20.00%	25V
C1273	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1274	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1275	1-163-007-11	CERAMIC CHIP	680PF	10.00%	50V

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REF NO.	PART NO.	DESCRIPTION			REMARK
C1276	1-163-007-11	CERAMIC CHIP	680PF	10.00%	50V
C1277	1-164-690-91	CERAMIC CHIP	0.0022UF	5.00%	50V
C1279	1-164-690-91	CERAMIC CHIP	0.0022UF	5.00%	50V
C1281	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1282	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C1283	1-164-690-91	CERAMIC CHIP	0.0022UF	5.00%	50V
C1284	1-164-690-91	CERAMIC CHIP	0.0022UF	5.00%	50V
C1285	1-126-933-11	ELECT	100UF	20.00%	16V
C1286	1-126-933-11	ELECT	100UF	20.00%	16V
C1287	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1288	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1289	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1290	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1291	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1292	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C1297	1-137-194-81	FILM	0.47UF	5.00%	50V
C1298	1-137-194-81	FILM	0.47UF	5.00%	50V
C1301	1-126-933-11	ELECT	100UF	20.00%	16V
C1302	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C2200	1-126-964-11	ELECT	10UF	20.00%	50V
C2201	1-126-964-11	ELECT	10UF	20.00%	50V
C2202	1-126-964-11	ELECT	10UF	20.00%	50V
C2203	1-126-963-11	ELECT	4.7UF	20.00%	50V
C2204	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C2205	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C2206	1-126-964-11	ELECT	10UF	20.00%	50V
C2209	1-126-968-11	ELECT	100UF	20.00%	50V
C2600	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C2601	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C2602	1-126-933-11	ELECT	100UF	20.00%	16V
C2603	1-126-933-11	ELECT	100UF	20.00%	16V
C2605	1-126-935-11	ELECT	470UF	20.00%	10V
C2606	1-164-344-11	CERAMIC CHIP	0.068UF	10.00%	25V
C2608	1-126-916-11	ELECT	1000UF	20.00%	6.3V
C2609	1-126-935-11	ELECT	470UF	20.00%	6.3V
C2610	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C2611	1-126-934-11	ELECT	220UF	20.00%	10V
C2612	1-126-933-11	ELECT	100UF	20.00%	16V
C2613	1-126-933-11	ELECT	100UF	20.00%	16V
C2614	1-126-935-11	ELECT	470UF	20.00%	10V
C3330	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C3331	1-126-933-11	ELECT	100UF	20.00%	16V
C3336	1-126-933-11	ELECT	100UF	20.00%	16V
C3338	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C3350	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C3351	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C3352	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C3353	1-126-933-11	ELECT	100UF	20.00%	16V
C3354	1-126-967-11	ELECT	47UF	20.00%	50V
C3355	1-126-947-11	ELECT	47UF	20.00%	16V

<CONNECTOR>

REF NO.	PART NO.	DESCRIPTION	REMARK
CN1100 *	1-560-218-00	PIN, CONNECTOR 7P	
CN1108	1-695-299-11	CONNECTOR, BOARD TO BOARD 50P	
CN1116	1-695-915-11	TAB (CONTACT)	
CN1118	1-793-493-11	CONNECTOR, BOARD TO BOARD 20P	
		(KV-ES38M31/ES38M61/ES38M91)	
CN1138 *	1-564-507-11	PLUG, CONNECTOR 4P	
CN1140	1-793-494-11	CONNECTOR, BOARD TO BOARD 40P	
CN1160 *	1-764-333-11	PLUG, CONNECTOR 10P	

REF NO.	PART NO.	DESCRIPTION	REMARK
CN1162	1-900-903-64	CONNECTOR ASSY 20P	
CN1180	1-793-495-11	CONNECTOR, BOARD TO BOARD 50P	
CN1190 *	1-564-510-11	PLUG, CONNECTOR 7P	
CN1193 *	1-764-333-11	PLUG, CONNECTOR 10P	
CN1195 *	1-564-506-11	PLUG, CONNECTOR 3P	

<COMPOSITION CIRCUIT BLOCK>

REF NO.	PART NO.	DESCRIPTION	REMARK
CP1300	1-251-658-31	SPLITTER RF	

<DIODE>

REF NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-404-50	MA111-TX	
D002	8-719-404-50	MA111-TX	
D003	8-719-404-50	MA111-TX	
D004	8-719-404-50	MA111-TX	
D005	8-719-404-50	MA111-TX	
D006	8-719-404-50	MA111-TX	
D007	8-719-158-18	RD5.6SB3	
D013	8-719-158-18	RD5.6SB3	
D014	8-719-404-50	MA111-TX	
D100	8-719-404-50	MA111-TX	
D300	8-719-404-50	MA111-TX	
D301	8-719-404-50	MA111-TX	
D302	8-719-404-50	MA111-TX	
D317	8-719-404-50	MA111-TX	
D1205	8-719-158-35	RD9.1S-B	
D1208	8-719-404-50	MA111-TX	
D1209	8-719-404-50	MA111-TX	
D2200	8-719-158-35	RD9.1S-B	
D2201	8-719-158-35	RD9.1S-B	
D2600	8-719-500-70	D5S4M	

<FERRITE BEAD>

REF NO.	PART NO.	DESCRIPTION		REMARK
FB001	1-414-233-22	FERRITE	0UH	
FB002	1-414-233-22	FERRITE	0UH	
FB003	1-414-233-22	FERRITE	0UH	
FB004	1-414-233-22	FERRITE	0UH	
FB005	1-414-233-22	FERRITE	0UH	
FB006	1-414-233-22	FERRITE	0UH	
FB007	1-414-233-22	FERRITE	0UH	
FB008	1-414-233-22	FERRITE	0UH	
FB1205	1-410-397-21	FERRITE	1.1UH	
FB1206	1-410-397-21	FERRITE	1.1UH	
FB1207	1-410-397-21	FERRITE	1.1UH	
FB1208	1-410-397-21	FERRITE	1.1UH	
FB1300	1-216-295-91	SHORT	0	

<FILTER>

REF NO.	PART NO.	DESCRIPTION	REMARK
FL001	1-236-071-11	ENCAPSULATED COMPONENT	

<IC>

REF NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-752-920-74	CXP750096-035Q	
IC002	8-759-042-02	S-80743AL-A7-S	
IC003	8-759-675-64	M24C08-MN6T(A)	
IC004	8-759-575-71	M24C04-WMN6T	
IC100	8-759-042-02	S-80743AL-A7-S	
IC1201	8-759-273-12	TDA7315D013TR	
IC1203	8-759-553-45	TDA7481	

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REF NO.	PART NO.	DESCRIPTION		REMARK
IC1204	8-759-553-45	TDA7481		
IC1205	8-759-100-96	UPC4558G2		
IC2200	8-759-745-64	NJM4560M		
IC2600	8-759-394-36	BA09T		
IC2601	8-759-450-47	BA05T		
IC2603	8-759-640-19	PQ1CG2032FZ		
IC2604	8-759-644-37	PQ5EV3		

<CHIP CONDUCTOR>

REF NO.	PART NO.	DESCRIPTION		REMARK
JR001	1-216-295-91	SHORT	0	
JR002	1-216-295-91	SHORT	0	
JR102	1-216-295-91	SHORT	0	
JR107	1-216-295-91	SHORT	0	
JR1301	1-216-295-91	SHORT	0	
JR2601	1-216-295-91	SHORT	0	

<COIL>

REF NO.	PART NO.	DESCRIPTION		
L001	1-414-856-11	INDUCTOR	10UH	
L002	1-414-856-11	INDUCTOR	10UH	
L003	1-414-751-11	INDUCTOR	1UH	
L005	1-414-856-11	INDUCTOR	10UH	
L101	1-414-856-11	INDUCTOR	10UH	
L102	1-414-856-11	INDUCTOR	10UH	
L103	1-414-856-11	INDUCTOR	10UH	
L104	1-414-856-11	INDUCTOR	10UH	
L105	1-414-856-11	INDUCTOR	10UH	
L1201	1-414-187-11	INDUCTOR	47UH	
L1202	1-416-857-11	INDUCTOR	65UH	
L1203	1-416-857-11	INDUCTOR	65UH	
L1204	1-416-857-11	INDUCTOR	65UH	
L1205	1-416-857-11	INDUCTOR	65UH	
L1300	1-414-856-11	INDUCTOR	10UH	
L2600	1-419-249-11	INDUCTOR	15UH	
L2601	1-419-249-11	INDUCTOR	15UH	
L2602	1-412-525-31	INDUCTOR	10UH	
L2603	1-412-525-31	INDUCTOR	10UH	
L3302	1-414-856-11	INDUCTOR	10UH	
L3303	1-414-856-11	INDUCTOR	10UH	
L3304	1-414-856-11	INDUCTOR	10UH	
L3305	1-414-856-11	INDUCTOR	10UH	
L3306	1-414-856-11	INDUCTOR	10UH	

<IC LINK>

REF NO.	PART NO.	DESCRIPTION	
PS1201	1-532-686-21	LINK, IC 2.7A/150V	
PS1202	1-532-686-21	LINK, IC 2.7A/150V	
PS1203	1-532-686-21	LINK, IC 2.7A/150V	
PS1204	1-532-686-21	LINK, IC 2.7A/150V	

<TRANSISTOR>

REF NO.	PART NO.	DESCRIPTION	
Q001	8-729-026-49	2SA1037AK-T146-R	
Q002	8-729-230-49	2SC2712-YG	
Q003	8-729-230-49	2SC2712-YG	
Q004	8-729-230-49	2SC2712-YG	
Q101	8-729-026-49	2SA1037AK-T146-R	
Q301	8-729-026-49	2SA1037AK-T146-R	
Q313	8-729-230-49	2SC2712-YG	
Q1205	1-801-806-11	TR DTC144EKA	
Q1206	8-729-230-49	2SC2712-YG	
Q1207	8-729-230-49	2SC2712-YG	

REF NO.	PART NO.	DESCRIPTION		REMARK
Q1209	8-729-230-49	2SC2712-YG		
Q1210	8-729-230-49	2SC2712-YG		
Q1211	8-729-026-49	2SA1037AK-T146-R		
Q2200	1-801-806-11	TR DTC144EKA		
Q2201	1-801-806-11	TR DTC144EKA		
Q3300	8-729-026-49	2SA1037AK-T146-R		

<RESISTOR>

REF NO.	PART NO.	DESCRIPTION			
R001	1-216-033-00	RES-CHIP	220	5%	1/10W
R002	1-216-033-00	RES-CHIP	220	5%	1/10W
R003	1-216-049-11	RES-CHIP	1K	5%	1/10W
R004	1-216-295-91	SHORT	0		
R005	1-216-295-91	SHORT	0		
R006	1-216-033-00	RES-CHIP	220	5%	1/10W
R008	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R010	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R011	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R012	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R013	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R014	1-216-025-11	RES-CHIP	100	5%	1/10W
R015	1-216-025-11	RES-CHIP	100	5%	1/10W
R016	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R017	1-216-049-11	RES-CHIP	1K	5%	1/10W
R018	1-216-045-00	RES-CHIP	680	5%	1/10W
R019	1-216-049-11	RES-CHIP	1K	5%	1/10W
R020	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R021	1-216-295-91	SHORT	0		
R022	1-216-033-00	RES-CHIP	220	5%	1/10W
R023	1-216-025-11	RES-CHIP	100	5%	1/10W
R024	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R025	1-216-033-00	RES-CHIP	220	5%	1/10W
R026	1-216-033-00	RES-CHIP	220	5%	1/10W
R027	1-216-049-11	RES-CHIP	1K	5%	1/10W
R028	1-216-049-11	RES-CHIP	1K	5%	1/10W
R029	1-216-049-11	RES-CHIP	1K	5%	1/10W
R031	1-216-033-00	RES-CHIP	220	5%	1/10W
R032	1-216-049-11	RES-CHIP	1K	5%	1/10W
R033	1-216-033-00	RES-CHIP	220	5%	1/10W
R035	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R036	1-216-033-00	RES-CHIP	220	5%	1/10W
R037	1-216-033-00	RES-CHIP	220	5%	1/10W
R038	1-216-045-00	RES-CHIP	680	5%	1/10W
R039	1-216-025-11	RES-CHIP	100	5%	1/10W
R040	1-216-033-00	RES-CHIP	220	5%	1/10W
R041	1-216-025-11	RES-CHIP	100	5%	1/10W
R042	1-216-295-91	SHORT	0		
R043	1-216-025-11	RES-CHIP	100	5%	1/10W
R044	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R045	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R046	1-216-033-00	RES-CHIP	220	5%	1/10W
R047	1-216-033-00	RES-CHIP	220	5%	1/10W
R048	1-216-073-91	RES-CHIP	10K	5%	1/10W
R051	1-216-049-11	RES-CHIP	1K	5%	1/10W
R052	1-216-049-11	RES-CHIP	1K	5%	1/10W
R053	1-216-049-11	RES-CHIP	1K	5%	1/10W
R054	1-216-033-00	RES-CHIP	220	5%	1/10W
R055	1-216-295-91	SHORT	0		
R056	1-216-295-91	SHORT	0		
R057	1-216-295-91	SHORT	0		
R058	1-216-295-91	SHORT	0		
R059	1-216-033-00	RES-CHIP	220	5%	1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK		REF NO.	PART NO.	DESCRIPTION		REMARK	
R060	1-216-033-00	RES-CHIP	220	5%	1/10W	R1246	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R062	1-216-049-11	RES-CHIP	1K	5%	1/10W	R1247	1-216-085-91	RES-CHIP	33K	5%	1/10W
R065	1-216-045-00	RES-CHIP	680	5%	1/10W	R1248	1-216-075-00	RES-CHIP	12K	5%	1/10W
R066	1-216-049-11	RES-CHIP	1K	5%	1/10W	R1249	1-216-025-11	RES-CHIP	100	5%	1/10W
R067	1-216-073-91	RES-CHIP	10K	5%	1/10W	R1250	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R068	1-216-073-91	RES-CHIP	10K	5%	1/10W	R1252	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R069	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R1253	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R070	1-216-033-00	RES-CHIP	220	5%	1/10W	R1254	1-216-075-00	RES-CHIP	12K	5%	1/10W
R071	1-216-025-11	RES-CHIP	100	5%	1/10W	R1255	1-216-075-00	RES-CHIP	12K	5%	1/10W
R072	1-216-025-11	RES-CHIP	100	5%	1/10W	R1256	1-216-073-91	RES-CHIP	10K	5%	1/10W
R073	1-216-055-00	RES-CHIP	1.8K	5%	1/10W	R1257	1-216-025-11	RES-CHIP	100	5%	1/10W
R074	1-216-055-00	RES-CHIP	1.8K	5%	1/10W	R1258	1-216-075-00	RES-CHIP	12K	5%	1/10W
R075	1-216-055-00	RES-CHIP	1.8K	5%	1/10W	R1259	1-216-073-91	RES-CHIP	10K	5%	1/10W
R076	1-216-295-91	SHORT	0			R1260	1-216-037-00	RES-CHIP	330	5%	1/10W
R077	1-216-025-11	RES-CHIP	100	5%	1/10W	R1261	1-216-037-00	RES-CHIP	330	5%	1/10W
R078	1-216-295-91	SHORT	0			R1264	1-216-041-00	RES-CHIP	470	5%	1/10W
R079	1-216-025-11	RES-CHIP	100	5%	1/10W	R1265	1-216-041-00	RES-CHIP	470	5%	1/10W
R080	1-216-063-91	RES-CHIP	3.9K	5%	1/10W	R1266	1-216-049-11	RES-CHIP	1K	5%	1/10W
R081	1-216-025-11	RES-CHIP	100	5%	1/10W	R1267	1-216-077-91	RES-CHIP	15K	5%	1/10W
R082	1-216-041-00	RES-CHIP	470	5%	1/10W	R1269	1-216-025-11	RES-CHIP	100	5%	1/10W
R083	1-216-049-11	RES-CHIP	1K	5%	1/10W	R1270	1-216-089-91	RES-CHIP	47K	5%	1/10W
R084	1-216-049-11	RES-CHIP	1K	5%	1/10W	R1271	1-216-049-11	RES-CHIP	1K	5%	1/10W
R085	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	R1272	1-216-049-11	RES-CHIP	1K	5%	1/10W
R086	1-216-073-91	RES-CHIP	10K	5%	1/10W	R1273	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R087	1-216-033-00	RES-CHIP	220	5%	1/10W	R1275	1-216-081-00	RES-CHIP	22K	5%	1/10W
R089	1-216-049-11	RES-CHIP	1K	5%	1/10W	R1276	1-216-081-00	RES-CHIP	22K	5%	1/10W
R090	1-216-295-91	SHORT	0			R1277	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R091	1-216-295-91	SHORT	0			R1280	1-216-037-00	RES-CHIP	330	5%	1/10W
R092	1-216-033-00	RES-CHIP	220	5%	1/10W	R1281	1-216-037-00	RES-CHIP	330	5%	1/10W
R093	1-216-073-91	RES-CHIP	10K	5%	1/10W	R1283	1-216-295-91	SHORT	0		
R094	1-216-073-91	RES-CHIP	10K	5%	1/10W	R1284	1-216-295-91	SHORT	0		
R101	1-216-025-11	RES-CHIP	100	5%	1/10W	R1286	1-216-073-91	RES-CHIP	10K	5%	1/10W
R102	1-216-025-11	RES-CHIP	100	5%	1/10W	R1287	1-216-037-00	RES-CHIP	330	5%	1/10W
R105	1-216-295-91	SHORT	0			R1288	1-216-037-00	RES-CHIP	330	5%	1/10W
R109	1-216-041-00	RES-CHIP	470	5%	1/10W	R1289	1-216-037-00	RES-CHIP	330	5%	1/10W
R110	1-216-043-91	RES-CHIP	560	5%	1/10W	R1290	1-216-037-00	RES-CHIP	330	5%	1/10W
R111	1-216-025-11	RES-CHIP	100	5%	1/10W	R2200	1-216-021-00	RES-CHIP	68	5%	1/10W
R112	1-216-025-11	RES-CHIP	100	5%	1/10W	R2201	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R116	1-216-025-11	RES-CHIP	100	5%	1/10W	R2202	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R117	1-216-025-11	RES-CHIP	100	5%	1/10W	R2203	1-216-021-00	RES-CHIP	68	5%	1/10W
R118	1-216-025-11	RES-CHIP	100	5%	1/10W	R2204	1-216-073-91	RES-CHIP	10K	5%	1/10W
R301	1-216-113-00	RES-CHIP	470K	5%	1/10W	R2205	1-216-097-11	RES-CHIP	100K	5%	1/10W
R302	1-216-089-91	RES-CHIP	47K	5%	1/10W	R2206	1-216-117-00	RES-CHIP	680K	5%	1/10W
R303	1-216-089-91	RES-CHIP	47K	5%	1/10W	R2207	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R1201	1-216-033-00	RES-CHIP	220	5%	1/10W	R2208	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1202	1-216-033-00	RES-CHIP	220	5%	1/10W	R2209	1-216-117-00	RES-CHIP	680K	5%	1/10W
R1203	1-216-079-00	RES-CHIP	18K	5%	1/10W	R2210	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1204	1-216-079-00	RES-CHIP	18K	5%	1/10W	R2211	1-216-097-11	RES-CHIP	100K	5%	1/10W
R1205	1-216-089-91	RES-CHIP	47K	5%	1/10W	R2212	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1206	1-216-089-91	RES-CHIP	47K	5%	1/10W	R2213	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1207	1-216-073-91	RES-CHIP	10K	5%	1/10W	R2214	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1208	1-216-073-91	RES-CHIP	10K	5%	1/10W	R2215	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1236	1-208-808-11	METAL CHIP	12K	0.5%	1/10W	R2216	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1237	1-216-085-91	RES-CHIP	33K	5%	1/10W	R2217	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1238	1-216-081-00	RES-CHIP	22K	5%	1/10W	R2600	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1239	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	R2601	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R1240	1-216-085-91	RES-CHIP	33K	5%	1/10W	R2602	1-208-781-11	METAL CHIP	910	0.5%	1/10W
R1241	1-216-073-91	RES-CHIP	10K	5%	1/10W	R2603	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R1242	1-216-073-91	RES-CHIP	10K	5%	1/10W	R2604	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R1244	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R3300	1-216-043-91	RES-CHIP	560	5%	1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R3320	1-216-073-91	RES-CHIP	10K	5%	1/10W
R3323	1-216-025-11	RES-CHIP	100	5%	1/10W
R3334	1-216-025-11	RES-CHIP	100	5%	1/10W
R3362	1-216-025-11	RES-CHIP	100	5%	1/10W
R3374	1-216-295-91	SHORT	0		

<VARIABLE RESISTOR>

REF NO.	PART NO.	DESCRIPTION	
RV3300	1-238-597-11	RES, ADJ, CARBON 1K	

<TUNER>

REF NO.	PART NO.	DESCRIPTION
TU101	8-598-452-30	TUNER, FSS BTF-WG442
TU3301	8-598-508-10	TUNER, FSS BTF-LG436

<CRYSTAL>

REF NO.	PART NO.	DESCRIPTION
X001	1-567-928-11	VIBLATOR, CERAMIC

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* A-1299-593-A	A1 BOARD COMPLETE	
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3-350-679-01	WASHER, FIBER	

<CAPACITOR>

REF NO.	PART NO.	DESCRIPTION		REMARK	
C8103	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8104	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8105	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8106	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8107	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8108	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8109	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8110	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8111	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8112	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C8116	1-164-161-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C8117	1-126-382-11	ELECT	100UF	20.00%	16V
C8118	1-127-532-11	ELECT	47UF	20.00%	6.3V
C8119	1-126-795-11	ELECT	10UF	20.00%	25V
C8120	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8121	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C8122	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C8123	1-127-532-11	ELECT	47UF	20.00%	6.3V
C8124	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8125	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8126	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8129	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8130	1-126-382-11	ELECT	100UF	20.00%	16V
C8131	1-126-382-11	ELECT	100UF	20.00%	16V
C8132	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C8133	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8134	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8135	1-126-382-11	ELECT	100UF	20.00%	16V
C8136	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8137	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8138	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8139	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8140	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C8141	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8142	1-163-235-11	CERAMIC CHIP	22PF	5.00%	50V
C8143	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8144	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8145	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C8146	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8147	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8150	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8155	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8161	1-127-532-11	ELECT	47UF	20.00%	6.3V
C8162	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C8163	1-216-295-91	SHORT	0		
C8166	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8167	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8168	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8197	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8198	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8199	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8200	1-216-295-91	SHORT	0		
C8201	1-216-295-91	SHORT	0		
C8202	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8203	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8204	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8205	1-163-253-11	CERAMIC CHIP	120PF	5.00%	50V
C8206	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8207	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8208	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8209	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8210	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C8211	1-115-340-11	CERAMIC CHIP	0.22UF	10.00%	25V
C8212	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C8213	1-125-838-11	CERAMIC CHIP	2.2UF	10%	6.3V
C8218	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V

<CONNECTOR>

REF NO.	PART NO.	DESCRIPTION
CN8100	1-793-867-11	PIN, CONNECTOR (PC BORAD) 10P
CN8101	1-793-867-11	PIN, CONNECTOR (PC BORAD) 10P

<FERRITE BEAD>

REF NO.	PART NO.	DESCRIPTION	
FB8100	1-216-295-91	SHORT	0
FB8101	1-216-295-91	SHORT	0
FB8102	1-216-295-91	SHORT	0
FB8103	1-216-295-91	SHORT	0
FB8104	1-414-598-11	FERRITE	0UH
FB8105	1-216-295-91	SHORT	0
FB8106	1-414-598-11	FERRITE	0UH
FB8108	1-414-598-11	FERRITE	0UH
FB8109	1-414-598-11	FERRITE	0UH
FB8110	1-414-598-11	FERRITE	0UH
FB8111	1-414-598-11	FERRITE	0UH
FB8112	1-414-598-11	FERRITE	0UH
FB8113	1-414-598-11	FERRITE	0UH
FB8114	1-414-598-11	FERRITE	0UH
FB8115	1-414-598-11	FERRITE	0UH
FB8116	1-414-598-11	FERRITE	0UH
FB8117	1-414-598-11	FERRITE	0UH
FB8118	1-414-598-11	FERRITE	0UH
FB8119	1-414-598-11	FERRITE	0UH
FB8120	1-414-598-11	FERRITE	0UH

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REF NO.	PART NO.	DESCRIPTION		REMARK	
FB8121	1-414-598-11	FERRITE	0UH		
		<FILTER>			
FL8100	1-234-177-21	FILTER, CHIP EMI			
FL8101	1-234-177-21	FILTER, CHIP EMI			
FL8102	1-234-177-21	FILTER, CHIP EMI			
		<IC>			
IC8102	8-759-576-72	LF50CDT-TR			
IC8103	8-759-579-68	AK4524			
IC8104	8-759-542-87	S-80827ANUP-EDQ			
IC8105	8-759-833-26	IC TC9446F-011			
IC8106	8-759-242-70	TC7WU04F			
IC8107	8-759-459-69	S-80743AN-D7			
		<CHIP CONDUCTOR>			
JR8102	1-216-295-91	SHORT	0		
JR8103	1-216-295-91	SHORT	0		
		<COIL>			
L8100	1-412-026-11	INDUCTOR	1UH		
L8101	1-412-026-11	INDUCTOR	1UH		
L8102	1-412-026-11	INDUCTOR	1UH		
L8103	1-412-026-11	INDUCTOR	1UH		
L8104	1-412-026-11	INDUCTOR	1UH		
L8105	1-412-026-11	INDUCTOR	1UH		
		<RESISTOR>			
R8101	1-216-033-00	RES-CHIP	220	5%	1/10W
R8102	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R8103	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R8106	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R8107	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R8120	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8121	1-216-025-11	RES-CHIP	100	5%	1/10W
R8122	1-216-025-11	RES-CHIP	100	5%	1/10W
R8123	1-216-009-91	RES-CHIP	22	5%	1/10W
R8124	1-216-009-91	RES-CHIP	22	5%	1/10W
R8125	1-216-009-91	RES-CHIP	22	5%	1/10W
R8126	1-216-009-91	RES-CHIP	22	5%	1/10W
R8127	1-216-025-11	RES-CHIP	100	5%	1/10W
R8128	1-216-025-11	RES-CHIP	100	5%	1/10W
R8129	1-216-009-91	RES-CHIP	22	5%	1/10W
R8131	1-216-295-91	SHORT	0		
R8133	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R8134	1-216-295-91	SHORT	0		
R8135	1-216-295-91	SHORT	0		
R8137	1-216-295-91	SHORT	0		
R8138	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8139	1-216-037-00	RES-CHIP	330	5%	1/10W
R8140	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8141	1-216-295-91	SHORT	0		
R8143	1-216-295-91	SHORT	0		
R8144	1-216-025-11	RES-CHIP	100	5%	1/10W
R8145	1-216-033-00	RES-CHIP	220	5%	1/10W
R8146	1-216-033-00	RES-CHIP	220	5%	1/10W

REF NO.	PART NO.	DESCRIPTION		REMARK		
R8147	1-216-295-91	SHORT	0			
R8148	1-216-295-91	SHORT	0			
R8149	1-216-037-00	RES-CHIP	330	5%	1/10W	
R8155	1-216-295-91	SHORT	0			
R8157	1-216-037-00	RES-CHIP	330	5%	1/10W	
R8158	1-216-037-00	RES-CHIP	330	5%	1/10W	
R8161	1-216-025-11	RES-CHIP	100	5%	1/10W	
R8168	1-216-025-11	RES-CHIP	100	5%	1/10W	
R8169	1-216-097-11	RES-CHIP	100K	5%	1/10W	
R8170	1-216-121-11	RES-CHIP	1M	5%	1/10W	
R8171	1-216-025-11	RES-CHIP	100	5%	1/10W	
R8172	1-216-025-11	RES-CHIP	100	5%	1/10W	
R8173	1-216-025-11	RES-CHIP	100	5%	1/10W	
R8200	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R8201	1-216-025-11	RES-CHIP	100	5%	1/10W	
R8202	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R8203	1-208-782-11	METAL CHIP	1K	0.5%	1/10W	
R8204	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R8205	1-208-782-11	METAL CHIP	1K	0.5%	1/10W	
R8206	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R8207	1-216-077-91	RES-CHIP	15K	5%	1/10W	
		<CRYSTAL>				
X8102	1-781-041-11	VIBRATOR, CRYSTAL				

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* A-1136-251-A B3 BOARD COMPLETE
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REF NO.	PART NO.	DESCRIPTION				
		<CAPACITOR>				
C333	1-216-295-91	SHORT	0			
C368	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C369	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C372	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C373	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C374	1-126-603-11	ELECT CHIP	4.7UF	20.00%	35V	
C375	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C376	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C377	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C378	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C501	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C502	1-124-779-00	ELECT CHIP	10UF	20.00%	16V	
C503	1-124-779-00	ELECT CHIP	10UF	20.00%	16V	
C505	1-124-779-00	ELECT CHIP	10UF	20.00%	16V	
C507	1-124-779-00	ELECT CHIP	10UF	20.00%	16V	
C509	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C510	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C511	1-163-038-91	CERAMIC CHIP	0.1UF		25V	
C512	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C514	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V	
C515	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C516	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V	
C517	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	
C518	1-126-204-11	ELECT CHIP	47UF	20.00%	16V	
C519	1-163-038-91	CERAMIC CHIP	0.1UF		25V	
C520	1-163-038-91	CERAMIC CHIP	0.1UF		25V	
C521	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V	

REF NO.	PART NO.	DESCRIPTION		REMARK	
C522	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C523	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C524	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C525	1-126-394-11	ELECT CHIP	10UF	20.00%	16V
C526	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C527	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C528	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C529	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C531	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C533	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C535	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C536	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C537	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C538	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C539	1-126-204-11	ELECT CHIP	47UF	20.00%	16V
C540	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C542	1-126-204-11	ELECT CHIP	47UF	20.00%	16V
C543	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C545	1-126-396-11	ELECT CHIP	47UF	20.00%	16V
C546	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C548	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C549	1-126-204-11	ELECT CHIP	47UF	20.00%	16V
C550	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C551	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C554	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C555	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C556	1-126-392-11	ELECT CHIP	100UF	20.00%	6.3V
C557	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C559	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C560	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C601	1-126-394-11	ELECT CHIP	10UF	20.00%	16V
C602	1-126-394-11	ELECT CHIP	10UF	20.00%	16V
C603	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C604	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C605	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C606	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C607	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C608	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C609	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C610	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C611	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C612	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C613	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C614	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C615	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C616	1-126-396-11	ELECT CHIP	47UF	20.00%	16V
C617	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C618	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C619	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C620	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C621	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C622	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C623	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C624	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C625	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C626	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C627	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C628	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C629	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C630	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C631	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C632	1-126-206-11	ELECT CHIP	100UF	20.00%	6.3V
C633	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C634	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C635	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C636	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C637	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C638	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C639	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C640	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C642	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C643	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C644	1-126-398-11	ELECT CHIP	4.7UF	20.00%	35V
C645	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C801	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C802	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C803	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C804	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C806	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C807	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C808	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C809	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C810	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C811	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C812	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C813	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C814	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C815	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C816	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C817	1-163-229-11	CERAMIC CHIP	12PF	5.00%	50V
C818	1-163-229-11	CERAMIC CHIP	12PF	5.00%	50V
C819	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C820	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C821	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C822	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C823	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C824	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C827	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C829	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C834	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C835	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C839	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C840	1-126-206-11	ELECT CHIP	100UF	20.00%	6.3V
C841	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C842	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C843	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C844	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C848	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C849	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C850	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C851	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C853	1-164-182-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C854	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C901	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C902	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C903	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C904	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C905	1-109-982-11	CERAMIC CHIP	1UF	10.00%	10V
C906	1-124-779-00	ELECT CHIP	10UF	20.00%	16V
C907	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C908	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C909	1-126-396-11	ELECT CHIP	47UF	20.00%	16V
C910	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V

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The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF NO.	PART NO.	DESCRIPTION		REMARK	
C913	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C914	1-126-394-11	ELECT CHIP	10UF	20.00%	16V
C950	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C954	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
		<CONNECTOR>			
CN502	1-695-302-11	CONNECTOR, BOARD TO BOARD 50P			
		<DIODE>			
D501	8-719-056-77	UDZ-TE-17-3.9B			
D601	8-719-404-50	MA111-TX			
		<FERRITE BEAD>			
FB501	1-414-813-11	FERRITE	0UH		
FB502	1-414-813-11	FERRITE	0UH		
FB503	1-414-813-11	FERRITE	0UH		
FB504	1-414-813-11	FERRITE	0UH		
FB601	1-414-553-11	FERRITE	0UH		
FB801	1-414-553-11	FERRITE	0UH		
FB802	1-414-553-11	FERRITE	0UH		
		<FILTER>			
FL306	1-239-558-11	FILTER, CHIP EMI			
FL501	1-233-877-11	FILTER, LOW PASS			
FL502	1-233-504-21	FILTER, LOW PASS			
FL503	1-233-504-21	FILTER, LOW PASS			
FL504	1-234-177-21	FILTER, CHIP EMI			
FL505	1-234-177-21	FILTER, CHIP EMI			
FL506	1-234-177-21	FILTER, CHIP EMI			
FL508	1-234-177-21	FILTER, CHIP EMI			
FL509	1-234-177-21	FILTER, CHIP EMI			
FL510	1-234-177-21	FILTER, CHIP EMI			
FL511	1-234-177-21	FILTER, CHIP EMI			
FL512	1-234-177-21	FILTER, CHIP EMI			
FL601	1-234-177-21	FILTER, CHIP EMI			
FL602	1-234-177-21	FILTER, CHIP EMI			
FL603	1-234-177-21	FILTER, CHIP EMI			
FL606	1-239-560-11	FILTER, CHIP EMI			
FL801	1-234-177-21	FILTER, CHIP EMI			
FL802	1-234-177-21	FILTER, CHIP EMI			
FL803	1-234-177-21	FILTER, CHIP EMI			
FL804	1-234-177-21	FILTER, CHIP EMI			
FL806	1-234-177-21	FILTER, CHIP EMI			
FL807	1-234-177-21	FILTER, CHIP EMI			
FL808	1-234-177-21	FILTER, CHIP EMI			
FL901	1-233-878-11	FILTER, LOW PASS			
FL902	1-233-876-11	FILTER, LOW PASS			
FL903	1-233-876-11	FILTER, LOW PASS			
FL904	1-234-177-21	FILTER, CHIP EMI			
FL905	1-234-177-21	FILTER, CHIP EMI			
FL906	1-234-177-21	FILTER, CHIP EMI			
FL907	1-234-177-21	FILTER, CHIP EMI			
		<IC>			
IC313	8-759-669-75	TLC2932IPWR			
IC314	8-759-525-10	TC7SET08F(TE85L)			
IC315	8-759-525-10	TC7SET08F(TE85L)			

REF NO.	PART NO.	DESCRIPTION		REMARK
IC316	8-759-525-10	TC7SET08F(TE85L)		
IC501	8-759-447-90	TLC5733AIPM		
IC504	8-759-669-78	TLC2933IPWR-12		
IC505	8-759-640-16	TC7SET04F(TE85R		
IC506	8-759-640-16	TC7SET04F(TE85R		
IC601	8-752-398-47	CXD2090Q		
IC602	8-759-836-37	IC MT48LC1M16A1TG-6S		
IC603	⚠ 8-759-669-75	TLC2932IPWR		
IC604	8-752-072-94	CXA1875AM-T4		
IC801	8-759-672-57	CXD9509AQ		
IC802	8-759-677-37	MT48LC2M32B2TG-		
IC803	8-759-460-29	PST9120NL		
IC901	8-752-367-59	CXD2309Q		
IC902	8-759-829-33	IC MB94918RPF-G-133-BND		
IC903	6-700-149-01	IC M24C04-MN6T(A)		
IC904	8-759-349-11	PST9145NL		
		<COIL>		
L304	1-412-029-11	INDUCTOR	10UH	
L305	1-412-029-11	INDUCTOR	10UH	
L501	1-412-026-11	INDUCTOR	1UH	
L502	1-412-026-11	INDUCTOR	1UH	
L503	1-412-026-11	INDUCTOR	1UH	
L504	1-412-026-11	INDUCTOR	1UH	
L505	1-412-029-11	INDUCTOR	10UH	
L506	1-412-026-11	INDUCTOR	1UH	
L508	1-412-029-11	INDUCTOR	10UH	
L509	1-412-029-11	INDUCTOR	10UH	
L511	1-412-026-11	INDUCTOR	1UH	
L512	1-412-026-11	INDUCTOR	1UH	
L604	1-412-029-11	INDUCTOR	10UH	
L605	1-412-029-11	INDUCTOR	10UH	
		<TRANSISTOR>		
Q304	8-729-120-28	2SC1623-L5L6		
Q501	8-729-216-22	2SA1162-G		
Q502	8-729-120-28	2SC1623-L5L6		
Q503	8-729-120-28	2SC1623-L5L6		
Q510	8-729-120-28	2SC1623-L5L6		
Q511	8-729-120-28	2SC1623-L5L6		
Q512	8-729-120-28	2SC1623-L5L6		
Q513	8-729-120-28	2SC1623-L5L6		
Q514	8-729-120-28	2SC1623-L5L6		
Q515	8-729-120-28	2SC1623-L5L6		
Q516	8-729-120-28	2SC1623-L5L6		
Q517	8-729-120-28	2SC1623-L5L6		
Q518	8-729-216-22	2SA1162-G		
Q519	1-801-806-11	TR DTC144EKA		
Q520	1-801-806-11	TR DTC144EKA		
Q521	8-729-120-28	2SC1623-L5L6		
Q522	8-729-120-28	2SC1623-L5L6		
Q523	8-729-120-28	2SC1623-L5L6		
Q524	8-729-120-28	2SC1623-L5L6		
Q601	8-729-120-28	2SC1623-L5L6		
Q602	8-729-120-28	2SC1623-L5L6		
Q901	8-729-216-22	2SA1162-G		
Q902	8-729-216-22	2SA1162-G		
Q903	8-729-216-22	2SA1162-G		
Q904	8-729-028-28	2SK2036(TE85L)		

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REF NO.	PART NO.	DESCRIPTION			REMARK
Q905	8-729-028-28	2SK2036(TE85L)			
Q906	1-801-806-11	TR DTC144EKA			
Q907	8-729-216-22	2SA1162-G			
Q908	8-729-216-22	2SA1162-G			
Q909	8-729-216-22	2SA1162-G			
		<RESISTOR>			
R310	1-216-009-91	RES-CHIP	22	5%	1/10W
R334	1-216-295-91	SHORT	0		
R339	1-216-295-91	SHORT	0		
R350	1-216-049-11	RES-CHIP	1K	5%	1/10W
R361	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R362	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R363	1-216-037-00	RES-CHIP	330	5%	1/10W
R364	1-216-295-91	SHORT	0		
R365	1-216-047-91	RES-CHIP	820	5%	1/10W
R366	1-216-049-11	RES-CHIP	1K	5%	1/10W
R367	1-216-117-00	RES-CHIP	680K	5%	1/10W
R368	1-216-117-00	RES-CHIP	680K	5%	1/10W
R369	1-216-295-91	SHORT	0		
R371	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R372	1-216-009-91	RES-CHIP	22	5%	1/10W
R373	1-216-066-00	RES-CHIP	5.1K	5%	1/10W
R501	1-216-025-11	RES-CHIP	100	5%	1/10W
R502	1-216-025-11	RES-CHIP	100	5%	1/10W
R503	1-216-295-91	SHORT	0		
R504	1-216-295-91	SHORT	0		
R505	1-216-295-91	SHORT	0		
R506	1-216-009-91	RES-CHIP	22	5%	1/10W
R507	1-216-009-91	RES-CHIP	22	5%	1/10W
R508	1-216-025-11	RES-CHIP	100	5%	1/10W
R509	1-216-025-11	RES-CHIP	100	5%	1/10W
R510	1-216-043-91	RES-CHIP	560	5%	1/10W
R511	1-216-043-91	RES-CHIP	560	5%	1/10W
R512	1-216-043-91	RES-CHIP	560	5%	1/10W
R513	1-216-043-91	RES-CHIP	560	5%	1/10W
R514	1-216-043-91	RES-CHIP	560	5%	1/10W
R515	1-216-043-91	RES-CHIP	560	5%	1/10W
R516	1-216-049-11	RES-CHIP	1K	5%	1/10W
R517	1-216-049-11	RES-CHIP	1K	5%	1/10W
R518	1-216-295-91	SHORT	0		
R520	1-208-776-11	METAL CHIP	560	0.5%	1/10W
R521	1-216-295-91	SHORT	0		
R523	1-208-776-11	METAL CHIP	560	0.5%	1/10W
R524	1-216-295-91	SHORT	0		
R526	1-208-776-11	METAL CHIP	560	0.5%	1/10W
R528	1-216-037-00	RES-CHIP	330	5%	1/10W
R529	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R530	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R531	1-216-031-00	RES-CHIP	180	5%	1/10W
R532	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R533	1-216-031-00	RES-CHIP	180	5%	1/10W
R534	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R535	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R536	1-216-049-11	RES-CHIP	1K	5%	1/10W
R537	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R540	1-216-049-11	RES-CHIP	1K	5%	1/10W
R548	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R549	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R550	1-208-756-11	METAL CHIP	82	0.5%	1/10W
R551	1-208-756-11	METAL CHIP	82	0.5%	1/10W
R552	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R553	1-216-295-91	SHORT	0		
R554	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R555	1-216-077-91	RES-CHIP	15K	5%	1/10W
R557	1-216-049-11	RES-CHIP	1K	5%	1/10W
R558	1-216-025-11	RES-CHIP	100	5%	1/10W
R559	1-216-077-91	RES-CHIP	15K	5%	1/10W
R560	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R561	1-216-043-91	RES-CHIP	560	5%	1/10W
R562	1-216-043-91	RES-CHIP	560	5%	1/10W
R563	1-216-043-91	RES-CHIP	560	5%	1/10W
R564	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R565	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R566	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R571	1-216-295-91	SHORT	0		
R572	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R575	1-208-756-11	METAL CHIP	82	0.5%	1/10W
R576	1-208-756-11	METAL CHIP	82	0.5%	1/10W
R577	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R578	1-208-750-11	METAL CHIP	47	0.5%	1/10W
R579	1-216-077-91	RES-CHIP	15K	5%	1/10W
R580	1-216-295-91	SHORT	0		
R582	1-216-041-00	RES-CHIP	470	5%	1/10W
R584	1-216-041-00	RES-CHIP	470	5%	1/10W
R586	1-216-049-11	RES-CHIP	1K	5%	1/10W
R587	1-216-049-11	RES-CHIP	1K	5%	1/10W
R589	1-216-049-11	RES-CHIP	1K	5%	1/10W
R590	1-216-049-11	RES-CHIP	1K	5%	1/10W
R591	1-216-049-11	RES-CHIP	1K	5%	1/10W
R592	1-216-049-11	RES-CHIP	1K	5%	1/10W
R594	1-216-041-00	RES-CHIP	470	5%	1/10W
R596	1-216-049-11	RES-CHIP	1K	5%	1/10W
R597	1-216-073-91	RES-CHIP	10K	5%	1/10W
R598	1-216-025-11	RES-CHIP	100	5%	1/10W
R600	1-216-066-00	RES-CHIP	5.1K	5%	1/10W
R601	1-216-073-91	RES-CHIP	10K	5%	1/10W
R602	1-216-073-91	RES-CHIP	10K	5%	1/10W
R603	1-216-073-91	RES-CHIP	10K	5%	1/10W
R604	1-216-033-00	RES-CHIP	220	5%	1/10W
R605	1-216-295-91	SHORT	0		
R608	1-216-295-91	SHORT	0		
R609	1-216-073-91	RES-CHIP	10K	5%	1/10W
R610	1-216-033-00	RES-CHIP	220	5%	1/10W
R611	1-216-073-91	RES-CHIP	10K	5%	1/10W
R613	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R615	1-216-089-91	RES-CHIP	47K	5%	1/10W
R616	1-216-073-91	RES-CHIP	10K	5%	1/10W
R617	1-216-295-91	SHORT	0		
R619	1-216-073-91	RES-CHIP	10K	5%	1/10W
R621	1-216-295-91	SHORT	0		
R622	1-216-295-91	SHORT	0		
R623	1-216-295-91	SHORT	0		
R624	1-216-295-91	SHORT	0		
R625	1-216-295-91	SHORT	0		
R626	1-216-073-91	RES-CHIP	10K	5%	1/10W
R628	1-216-295-91	SHORT	0		
R629	1-216-073-91	RES-CHIP	10K	5%	1/10W
R631	1-216-295-91	SHORT	0		
R634	1-216-295-91	SHORT	0		
R635	1-216-295-91	SHORT	0		
R638	1-216-295-91	SHORT	0		
R639	1-216-019-00	RES-CHIP	56	5%	1/10W
R640	1-216-009-91	RES-CHIP	22	5%	1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK			REF NO.	PART NO.	DESCRIPTION		REMARK	
R642	1-216-295-91	SHORT	0				R827	1-216-607-11	METAL CHIP	15	0.5%	1/10W
R643	1-216-295-91	SHORT	0				R831	1-216-295-91	SHORT	0		
R645	1-216-295-91	SHORT	0									
							R832	1-216-295-91	SHORT	0		
R651	1-216-295-91	SHORT	0				R833	1-216-295-91	SHORT	0		
R653	1-216-025-11	RES-CHIP	100	5%	1/10W		R834	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R654	1-216-033-00	RES-CHIP	220	5%	1/10W		R835	1-208-755-11	METAL CHIP	75	0.5%	1/10W
R655	1-216-295-91	SHORT	0				R836	1-211-960-11	METAL CHIP	22	0.5%	1/10W
R657	1-216-009-91	RES-CHIP	22	5%	1/10W							
							R844	1-216-017-91	RES-CHIP	47	5%	1/10W
R658	1-216-049-11	RES-CHIP	1K	5%	1/10W		R845	1-216-017-91	RES-CHIP	47	5%	1/10W
R659	1-216-025-11	RES-CHIP	100	5%	1/10W		R846	1-216-017-91	RES-CHIP	47	5%	1/10W
R660	1-216-025-11	RES-CHIP	100	5%	1/10W		R847	1-216-017-91	RES-CHIP	47	5%	1/10W
R661	1-216-025-11	RES-CHIP	100	5%	1/10W		R848	1-216-017-91	RES-CHIP	47	5%	1/10W
R664	1-216-009-91	RES-CHIP	22	5%	1/10W							
							R849	1-216-017-91	RES-CHIP	47	5%	1/10W
R665	1-216-035-00	RES-CHIP	270	5%	1/10W		R850	1-216-017-91	RES-CHIP	47	5%	1/10W
R666	1-216-646-11	METAL CHIP	620	0.5%	1/10W		R851	1-216-017-91	RES-CHIP	47	5%	1/10W
R667	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W		R852	1-216-009-91	RES-CHIP	22	5%	1/10W
R668	1-216-009-91	RES-CHIP	22	5%	1/10W		R853	1-216-009-91	RES-CHIP	22	5%	1/10W
R670	1-216-295-91	SHORT	0									
							R854	1-216-009-91	RES-CHIP	22	5%	1/10W
R671	1-216-073-91	RES-CHIP	10K	5%	1/10W		R855	1-216-009-91	RES-CHIP	22	5%	1/10W
R672	1-216-073-91	RES-CHIP	10K	5%	1/10W		R856	1-216-009-91	RES-CHIP	22	5%	1/10W
R673	1-216-073-91	RES-CHIP	10K	5%	1/10W		R857	1-216-009-91	RES-CHIP	22	5%	1/10W
R674	1-216-073-91	RES-CHIP	10K	5%	1/10W		R858	1-216-009-91	RES-CHIP	22	5%	1/10W
R675	1-216-073-91	RES-CHIP	10K	5%	1/10W							
							R859	1-216-009-91	RES-CHIP	22	5%	1/10W
R676	1-216-073-91	RES-CHIP	10K	5%	1/10W		R860	1-216-009-91	RES-CHIP	22	5%	1/10W
R677	1-216-073-91	RES-CHIP	10K	5%	1/10W		R861	1-216-009-91	RES-CHIP	22	5%	1/10W
R678	1-216-073-91	RES-CHIP	10K	5%	1/10W		R862	1-216-009-91	RES-CHIP	22	5%	1/10W
R679	1-216-073-91	RES-CHIP	10K	5%	1/10W		R863	1-216-009-91	RES-CHIP	22	5%	1/10W
R680	1-216-073-91	RES-CHIP	10K	5%	1/10W							
							R864	1-216-017-91	RES-CHIP	47	5%	1/10W
R681	1-216-073-91	RES-CHIP	10K	5%	1/10W		R865	1-216-017-91	RES-CHIP	47	5%	1/10W
R682	1-216-073-91	RES-CHIP	10K	5%	1/10W		R866	1-216-017-91	RES-CHIP	47	5%	1/10W
R683	1-216-073-91	RES-CHIP	10K	5%	1/10W		R867	1-216-017-91	RES-CHIP	47	5%	1/10W
R684	1-216-073-91	RES-CHIP	10K	5%	1/10W		R868	1-216-017-91	RES-CHIP	47	5%	1/10W
R685	1-216-073-91	RES-CHIP	10K	5%	1/10W							
							R869	1-216-017-91	RES-CHIP	47	5%	1/10W
R686	1-216-073-91	RES-CHIP	10K	5%	1/10W		R870	1-216-017-91	RES-CHIP	47	5%	1/10W
R687	1-216-295-91	SHORT	0				R871	1-216-017-91	RES-CHIP	47	5%	1/10W
R688	1-216-061-91	RES-CHIP	3.3K	5%	1/10W		R872	1-216-017-91	RES-CHIP	47	5%	1/10W
R689	1-216-057-00	RES-CHIP	2.2K	5%	1/10W		R873	1-216-017-91	RES-CHIP	47	5%	1/10W
R690	1-216-295-91	SHORT	0									
							R874	1-216-017-91	RES-CHIP	47	5%	1/10W
R691	1-216-061-91	RES-CHIP	3.3K	5%	1/10W		R875	1-216-017-91	RES-CHIP	47	5%	1/10W
R692	1-216-057-00	RES-CHIP	2.2K	5%	1/10W		R876	1-216-017-91	RES-CHIP	47	5%	1/10W
R693	1-216-009-91	RES-CHIP	22	5%	1/10W		R877	1-216-017-91	RES-CHIP	47	5%	1/10W
R694	1-216-295-91	SHORT	0				R878	1-216-017-91	RES-CHIP	47	5%	1/10W
R695	1-216-047-91	RES-CHIP	820	5%	1/10W							
							R879	1-216-017-91	RES-CHIP	47	5%	1/10W
R696	1-216-049-11	RES-CHIP	1K	5%	1/10W		R880	1-216-009-91	RES-CHIP	22	5%	1/10W
R697	1-216-117-00	RES-CHIP	680K	5%	1/10W		R881	1-216-009-91	RES-CHIP	22	5%	1/10W
R698	1-216-117-00	RES-CHIP	680K	5%	1/10W		R882	1-216-009-91	RES-CHIP	22	5%	1/10W
R699	1-216-295-91	SHORT	0				R883	1-216-009-91	RES-CHIP	22	5%	1/10W
R801	1-216-009-91	RES-CHIP	22	5%	1/10W							
							R884	1-216-009-91	RES-CHIP	22	5%	1/10W
R802	1-216-009-91	RES-CHIP	22	5%	1/10W		R885	1-216-009-91	RES-CHIP	22	5%	1/10W
R804	1-216-073-91	RES-CHIP	10K	5%	1/10W		R886	1-216-009-91	RES-CHIP	22	5%	1/10W
R806	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W		R887	1-216-009-91	RES-CHIP	22	5%	1/10W
R807	1-208-778-11	METAL CHIP	680	0.5%	1/10W		R888	1-216-009-91	RES-CHIP	22	5%	1/10W
R813	1-216-295-91	SHORT	0									
							R889	1-216-295-91	SHORT	0		
R814	1-216-073-91	RES-CHIP	10K	5%	1/10W		R890	1-216-009-91	RES-CHIP	22	5%	1/10W
R815	1-216-073-91	RES-CHIP	10K	5%	1/10W		R891	1-216-017-91	RES-CHIP	47	5%	1/10W
R816	1-216-073-91	RES-CHIP	10K	5%	1/10W		R892	1-216-017-91	RES-CHIP	47	5%	1/10W
R817	1-216-017-91	RES-CHIP	47	5%	1/10W		R893	1-216-017-91	RES-CHIP	47	5%	1/10W
R823	1-216-073-91	RES-CHIP	10K	5%	1/10W							
							R894	1-216-017-91	RES-CHIP	47	5%	1/10W
R824	1-216-073-91	RES-CHIP	10K	5%	1/10W		R895	1-216-017-91	RES-CHIP	47	5%	1/10W
R825	1-208-760-11	METAL CHIP	120	0.5%	1/10W		R896	1-216-017-91	RES-CHIP	47	5%	1/10W
R826	1-208-758-11	METAL CHIP	100	0.5%	1/10W		R897	1-216-017-91	RES-CHIP	47	5%	1/10W
							R898	1-216-017-91	RES-CHIP	47	5%	1/10W

B3 BC4

REF NO.	PART NO.	DESCRIPTION		REMARK			REF NO.	PART NO.	DESCRIPTION		REMARK	
R899	1-216-073-91	RES-CHIP	10K	5%	1/10W		R2802	1-208-754-11	METAL CHIP	68	0.5%	1/10W
R901	1-216-061-91	RES-CHIP	3.3K	5%	1/10W		R2803	1-216-603-11	METAL CHIP	10	0.5%	1/10W
R902	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W		R2804	1-208-760-11	METAL CHIP	120	0.5%	1/10W
R903	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W		R2805	1-208-755-11	METAL CHIP	75	0.5%	1/10W
R904	1-216-635-11	METAL CHIP	220	0.5%	1/10W		R2806	1-211-960-11	METAL CHIP	22	0.5%	1/10W
R905	1-216-635-11	METAL CHIP	220	0.5%	1/10W		R2807	1-216-295-91	SHORT	0		
R906	1-216-635-11	METAL CHIP	220	0.5%	1/10W		R2808	1-216-295-91	SHORT	0		
R907	1-216-635-11	METAL CHIP	220	0.5%	1/10W		R2813	1-216-295-91	SHORT	0		
R908	1-216-635-11	METAL CHIP	220	0.5%	1/10W		R2815	1-216-295-91	SHORT	0		
R909	1-216-635-11	METAL CHIP	220	0.5%	1/10W		R2817	1-216-295-91	SHORT	0		
R910	1-216-049-11	RES-CHIP	1K	5%	1/10W		R2818	1-216-295-91	SHORT	0		
R911	1-216-049-11	RES-CHIP	1K	5%	1/10W		R2820	1-216-295-91	SHORT	0		
R912	1-216-049-11	RES-CHIP	1K	5%	1/10W		R2822	1-216-295-91	SHORT	0		
R914	1-216-065-91	RES-CHIP	4.7K	5%	1/10W							
R916	1-216-065-91	RES-CHIP	4.7K	5%	1/10W		RB001	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R923	1-216-057-00	RES-CHIP	2.2K	5%	1/10W		RB002	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R924	1-216-073-91	RES-CHIP	10K	5%	1/10W		RB003	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R926	1-216-057-00	RES-CHIP	2.2K	5%	1/10W		RB004	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R929	1-216-025-11	RES-CHIP	100	5%	1/10W		RB005	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R930	1-216-025-11	RES-CHIP	100	5%	1/10W		RB006	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R931	1-216-041-00	RES-CHIP	470	5%	1/10W		RB007	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
R933	1-216-025-11	RES-CHIP	100	5%	1/10W		RB008	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
R934	1-216-025-11	RES-CHIP	100	5%	1/10W		RB009	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
R935	1-216-073-91	RES-CHIP	10K	5%	1/10W		RB010	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
R936	1-216-041-00	RES-CHIP	470	5%	1/10W		RB011	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
R937	1-216-025-11	RES-CHIP	100	5%	1/10W		RB012	1-239-414-11	NETWORK RESISTOR (CHIP) 150			
R938	1-216-025-11	RES-CHIP	100	5%	1/10W		RB013	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
R940	1-216-295-91	SHORT	0				RB014	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
R941	1-216-295-91	SHORT	0				RB015	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
R942	1-216-037-00	RES-CHIP	330	5%	1/10W		RB016	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
R943	1-216-033-00	RES-CHIP	220	5%	1/10W		RB017	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
R944	1-216-295-91	SHORT	0				RB018	1-239-621-11	NETWORK RESISTOR (CHIP) 22			
R945	1-216-295-91	SHORT	0				RB019	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R951	1-216-057-00	RES-CHIP	2.2K	5%	1/10W		RB020	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R952	1-216-057-00	RES-CHIP	2.2K	5%	1/10W		RB021	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R956	1-216-089-91	RES-CHIP	47K	5%	1/10W		RB022	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R957	1-216-635-11	METAL CHIP	220	0.5%	1/10W		RB023	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R958	1-216-635-11	METAL CHIP	220	0.5%	1/10W		RB024	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R959	1-216-635-11	METAL CHIP	220	0.5%	1/10W		RB025	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R960	1-216-635-11	METAL CHIP	220	0.5%	1/10W		RB026	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R961	1-216-635-11	METAL CHIP	220	0.5%	1/10W		RB027	1-239-409-11	NETWORK RESISTOR (CHIP) 47			
R962	1-216-635-11	METAL CHIP	220	0.5%	1/10W		RB701	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
R979	1-216-295-91	SHORT	0				RB702	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
R981	1-216-037-00	RES-CHIP	330	5%	1/10W		RB703	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
R982	1-216-037-00	RES-CHIP	330	5%	1/10W		RB704	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
R983	1-216-089-91	RES-CHIP	47K	5%	1/10W		RB705	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
R984	1-216-061-91	RES-CHIP	3.3K	5%	1/10W		RB706	1-239-711-91	NETWORK RESISTOR (CHIP) 0			
R985	1-216-113-00	RES-CHIP	470K	5%	1/10W							
R986	1-216-061-91	RES-CHIP	3.3K	5%	1/10W							
R987	1-216-049-11	RES-CHIP	1K	5%	1/10W				<CRYSTAL>			
R988	1-216-033-00	RES-CHIP	220	5%	1/10W		X802	1-795-112-21	VIBRATOR, CRYSTAL			
R989	1-216-081-00	RES-CHIP	22K	5%	1/10W		X901	1-760-014-11	VIBRATOR, CERAMIC			
R990	1-216-113-00	RES-CHIP	470K	5%	1/10W							
R991	1-216-295-91	SHORT	0									
R993	1-216-089-91	RES-CHIP	47K	5%	1/10W							
R994	1-216-033-00	RES-CHIP	220	5%	1/10W							
R995	1-216-033-00	RES-CHIP	220	5%	1/10W							
R996	1-216-037-00	RES-CHIP	330	5%	1/10W							
R998	1-216-073-91	RES-CHIP	10K	5%	1/10W							
R2801	1-208-760-11	METAL CHIP	120	0.5%	1/10W							

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BC4

REF NO.	PART NO.	DESCRIPTION		REMARK	
*	A-1136-252-A	BC4 COMPLETE			
		***************			
	3-350-679-01	WASHER, FIBER			
		<CAPACITOR>			
C2003	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2005	1-163-131-00	CERAMIC CHIP	390PF	5.00%	50V
C2006	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C2010	1-163-102-00	CERAMIC CHIP	24PF	5.00%	50V
C2011	1-163-102-00	CERAMIC CHIP	24PF	5.00%	50V
C2015	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2016	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2017	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2018	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2021	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C2024	1-216-295-91	SHORT	0		
C2029	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2030	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2031	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2032	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2033	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2034	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2035	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2036	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2037	1-126-947-11	ELECT	47UF	20.00%	16V
C2038	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2039	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2040	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2041	1-126-924-11	ELECT	330UF	20.00%	6.3V
C2042	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2044	1-126-947-11	ELECT	47UF	20.00%	16V
C2045	1-163-106-00	CERAMIC CHIP	36PF	5.00%	50V
C2046	1-126-964-11	ELECT	10UF	20.00%	50V
C2047	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C2048	1-126-964-11	ELECT	10UF	20.00%	50V
C2049	1-126-960-11	ELECT	1UF	20.00%	50V
C2050	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V
C2051	1-126-964-11	ELECT	10UF	20.00%	50V
C2052	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C2053	1-126-960-11	ELECT	1UF	20.00%	50V
C2054	1-126-947-11	ELECT	47UF	20.00%	16V
C2055	1-126-947-11	ELECT	47UF	20.00%	16V
C2056	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V
C2057	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2058	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2059	1-126-947-11	ELECT	47UF	20.00%	16V
C2060	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2061	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2062	1-126-947-11	ELECT	47UF	20.00%	16V
C2063	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C2064	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2065	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2066	1-126-947-11	ELECT	47UF	20.00%	16V
C2067	1-126-947-11	ELECT	47UF	20.00%	16V
C2068	1-126-947-11	ELECT	47UF	20.00%	16V
C2069	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2070	1-126-947-11	ELECT	47UF	20.00%	16V
C2071	1-165-319-11	CERAMIC CHIP	0.1UF		50V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C2072	1-163-237-11	CERAMIC CHIP	27PF	5.00%	50V
C2074	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C2075	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C2078	1-126-947-11	ELECT	47UF	20.00%	16V
C2079	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2080	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C2095	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V
C2096	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V
C2097	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V
		<CONNECTOR>			
CN2001 *	1-793-685-11	PIN, CONNECTOR (PC BOARD) 15P			
		<FERRITE BEAD>			
FB2002	1-414-234-22	FERRITE	0UH		
FB2008	1-414-234-22	FERRITE	0UH		
FB2009	1-414-234-22	FERRITE	0UH		
FB2010	1-414-234-22	FERRITE	0UH		
FB2011	1-414-234-22	FERRITE	0UH		
FB2012	1-414-234-22	FERRITE	0UH		
FB2014	1-414-234-22	FERRITE	0UH		
FB2015	1-414-234-22	FERRITE	0UH		
FB2016	1-414-234-22	FERRITE	0UH		
FB2017	1-414-234-22	FERRITE	0UH		
		<FILTER>			
FL2001	1-239-848-11	FILTER, LOW PASS			
FL2002	1-239-848-11	FILTER, LOW PASS			
FL2003	1-239-848-11	FILTER, LOW PASS			
FL2004	1-239-848-11	FILTER, LOW PASS			
FL2005	1-233-736-21	FILTER, EMI			
FL2006	1-233-736-21	FILTER, EMI			
FL2007	1-233-736-21	FILTER, EMI			
		<IC>			
IC2003	8-759-568-27	MSM514265C-60JS			
IC2004	8-759-594-44	UPD64082GF-3BA			
IC2005	8-759-431-14	PQ3TZ53U			
		<COIL>			
L2001	1-410-200-31	INDUCTOR	4.7UH		
L2004	1-412-058-11	INDUCTOR	10UH		
L2005	1-412-058-11	INDUCTOR	10UH		
L2006	1-412-058-11	INDUCTOR	10UH		
L2007	1-412-058-11	INDUCTOR	10UH		
L2008	1-412-058-11	INDUCTOR	10UH		
		<TRANSISTOR>			
Q2002	8-729-216-22	2SA1162-G			
Q2003	8-729-216-22	2SA1162-G			
Q2004	8-729-216-22	2SA1162-G			
Q2005	8-729-422-33	2SD601A-Q-TX			
Q2006	8-729-422-33	2SD601A-Q-TX			
Q2007	8-729-422-33	2SD601A-Q-TX			
Q2008	8-729-422-33	2SD601A-Q-TX			

BC4 C

REF NO.	PART NO.	DESCRIPTION		REMARK		
Q2009	8-729-422-33	2SD601A-Q-TX				
Q2010	8-729-422-33	2SD601A-Q-TX				
Q2011	8-729-422-33	2SD601A-Q-TX				
Q2012	8-729-216-22	2SA1162-G				
Q2013	8-729-216-22	2SA1162-G				
Q2014	8-729-422-33	2SD601A-Q-TX				
Q2015	8-729-422-33	2SD601A-Q-TX				
Q2016	8-729-422-33	2SD601A-Q-TX				
Q2018	8-729-216-22	2SA1162-G				
Q2019	8-729-422-33	2SD601A-Q-TX				
		\<RESISTOR>				
R2001	1-216-097-11	RES-CHIP	100K	5%	1/10W	
R2011	1-216-041-00	RES-CHIP	470	5%	1/10W	
R2015	1-216-041-00	RES-CHIP	470	5%	1/10W	
R2019	1-216-295-91	SHORT	0			
R2021	1-216-025-11	RES-CHIP	100	5%	1/10W	
R2027	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2028	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2029	1-216-043-91	RES-CHIP	560	5%	1/10W	
R2030	1-216-043-91	RES-CHIP	560	5%	1/10W	
R2031	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	
R2032	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	
R2033	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R2034	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R2035	1-216-043-91	RES-CHIP	560	5%	1/10W	
R2036	1-216-649-11	METAL CHIP	820	0.5%	1/10W	
R2037	1-216-044-00	RES-CHIP	620	5%	1/10W	
R2039	1-216-047-91	RES-CHIP	820	5%	1/10W	
R2040	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R2041	1-216-047-91	RES-CHIP	820	5%	1/10W	
R2042	1-216-075-00	RES-CHIP	12K	5%	1/10W	
R2043	1-216-085-91	RES-CHIP	33K	5%	1/10W	
R2044	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R2046	1-216-075-00	RES-CHIP	12K	5%	1/10W	
R2047	1-216-085-91	RES-CHIP	33K	5%	1/10W	
R2048	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2049	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R2050	1-216-017-91	RES-CHIP	47	5%	1/10W	
R2051	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2052	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2053	1-216-041-00	RES-CHIP	470	5%	1/10W	
R2054	1-216-041-00	RES-CHIP	470	5%	1/10W	
R2055	1-216-017-91	RES-CHIP	47	5%	1/10W	
R2056	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	
R2057	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2058	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R2059	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2060	1-216-025-11	RES-CHIP	100	5%	1/10W	
R2061	1-216-043-91	RES-CHIP	560	5%	1/10W	
R2062	1-216-105-91	RES-CHIP	220K	5%	1/10W	
R2063	1-216-089-91	RES-CHIP	47K	5%	1/10W	
R2064	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2066	1-216-033-00	RES-CHIP	220	5%	1/10W	
R2067	1-216-043-91	RES-CHIP	560	5%	1/10W	
R2069	1-216-645-11	METAL CHIP	560	0.5%	1/10W	
R2070	1-216-641-11	METAL CHIP	390	0.5%	1/10W	
R2071	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	
R2072	1-216-043-91	RES-CHIP	560	5%	1/10W	
R2073	1-216-049-11	RES-CHIP	1K	5%	1/10W	

REF NO.	PART NO.	DESCRIPTION		REMARK		
R2074	1-216-025-11	RES-CHIP	100	5%	1/10W	
R2075	1-216-295-91	SHORT	0			
R2076	1-216-025-11	RES-CHIP	100	5%	1/10W	
R2077	1-216-025-11	RES-CHIP	100	5%	1/10W	
R2078	1-216-295-91	SHORT	0			
R2092	1-216-055-00	RES-CHIP	1.8K	5%	1/10W	
R2093	1-216-055-00	RES-CHIP	1.8K	5%	1/10W	
R2104	1-216-295-91	SHORT	0			
R2105	1-216-295-91	SHORT	0			
R2106	1-216-295-91	SHORT	0			
R2107	1-216-295-91	SHORT	0			
R2108	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2110	1-216-295-91	SHORT	0			
R2112	1-216-295-91	SHORT	0			
R2113	1-216-017-91	RES-CHIP	47	5%	1/10W	
R2115	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R2116	1-216-295-91	SHORT	0			
R2117	1-216-295-91	SHORT	0			
R2118	1-216-296-11	SHORT	0			
R2119	1-216-296-11	SHORT	0			
R2200	1-216-296-11	SHORT	0			
		\<VARIABLE RESISTOR>				
RV2001	1-223-271-21	RES, ADJ, CERMET 220				
		\<CRYSTAL>				
X2001	1-767-606-11	VIBRATOR, CRYSTAL				

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   * A-1332-227-A C BOARD MOUNTED
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    4-382-854-11 SCREW (M3X10), P, SW (+)

REF NO.	PART NO.	DESCRIPTION		REMARK		
		\<CAPACITOR>				
C9002	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9003	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9004	1-162-114-00	CERAMIC	0.0047UF		2KV	
C9005	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9006	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V	
C9007	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V	
C9008	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V	
C9009	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9010	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9011	1-136-207-11	MYLAR	0.047UF	10.00%	250V	
C9012	1-136-207-11	MYLAR	0.047UF	10.00%	250V	
C9014	1-136-207-11	MYLAR	0.047UF	10.00%	250V	
C9015	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9018	1-107-961-91	ELECT	10UF	20.00%	250V	
C9019	1-165-319-11	CERAMIC CHIP	0.1UF		50V	
C9020	1-107-961-91	ELECT	10UF	20.00%	250V	
C9021	1-107-961-91	ELECT	10UF	20.00%	250V	
C9022	1-101-004-00	CERAMIC	0.01UF		50V	
C9023	1-101-004-00	CERAMIC	0.01UF		50V	
C9024	1-165-319-11	CERAMIC CHIP	0.1UF		50V	

> The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
C9025	1-104-653-11	ELECT	220UF	20.00%	16V
C9026	1-165-319-11	CERAMIC CHIP	0.1UF		50V
C9027	1-101-004-00	CERAMIC	0.01UF		50V
C9028	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C9029	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C9030	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C9031	1-162-114-00	CERAMIC	0.0047UF		2KV
C9032	1-162-116-00	CERAMIC	680PF	10.00%	2KV
C9033	1-107-662-11	ELECT	22UF	20.00%	250V
C9035	1-162-114-00	CERAMIC	0.0047UF		2KV
C9042	1-104-661-91	ELECT	330UF	20.00%	16V

\<CONNECTOR\>

REF NO.	PART NO.	DESCRIPTION
CN9001 *	1-564-512-11	PLUG, CONNECTOR 9P
CN9002	1-691-765-11	PLUG (MICRO CONNECTOR) 3P
CN9003	1-695-915-11	TAB (CONTACT)
CN9004	1-695-915-11	TAB (CONTACT)
CN9007	1-785-879-11	CONNECTOR, ONE TOUCH

\<DIODE\>

REF NO.	PART NO.	DESCRIPTION
D9002	8-719-400-75	MA3091
D9005	8-719-404-50	MA111-TX
D9006	8-719-051-85	HSS83TD
D9007	8-719-051-85	HSS83TD
D9008	8-719-051-85	HSS83TD
D9009	8-719-908-03	GP08D
D9010	8-719-110-17	RD10ESB2
D9011	8-719-404-50	MA111-TX
D9012	8-719-404-50	MA111-TX
D9013	8-719-404-50	MA111-TX

\<IC\>

REF NO.	PART NO.	DESCRIPTION
IC9001	8-759-360-83	TDA6111Q/N4
IC9002	8-759-360-83	TDA6111Q/N4
IC9003	8-759-360-83	TDA6111Q/N4

\<JACK\>

REF NO.	PART NO.	DESCRIPTION
J9001 ⚠	1-540-071-22	SOCKET, CRT

\<COIL\>

REF NO.	PART NO.	DESCRIPTION	
L9001	1-414-158-11	INDUCTOR	2.2UH
L9002	1-408-591-11	INDUCTOR	1UH
L9003	1-408-591-11	INDUCTOR	1UH
L9004	1-408-591-11	INDUCTOR	1UH
L9005	1-406-666-21	INDUCTOR	150UH
L9006	1-412-526-11	INDUCTOR	12UH

\<NEON LAMP\>

REF NO.	PART NO.	DESCRIPTION
NL9001	1-519-526-11	LAMP, NEON
NL9003	1-519-421-11	GAP, DISCHARGE

\<TRANSISTOR\>

REF NO.	PART NO.	DESCRIPTION
Q9001	8-729-026-49	2SA1037AK-T146-R
Q9009	8-729-026-49	2SA1037AK-T146-R
Q9010	8-729-026-49	2SA1037AK-T146-R
Q9011	8-729-026-49	2SA1037AK-T146-R

\<RESISTOR\>

REF NO.	PART NO.	DESCRIPTION		REMARK	
R9001	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R9004	1-216-105-91	RES-CHIP	220K	5%	1/10W
R9006	1-216-073-91	RES-CHIP	10K	5%	1/10W
R9007	1-208-789-11	METAL CHIP	2K	0.5%	1/10W
R9008	1-216-085-91	RES-CHIP	33K	5%	1/10W
R9012	1-216-049-11	RES-CHIP	1K	5%	1/10W
R9013	1-216-049-11	RES-CHIP	1K	5%	1/10W
R9018	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R9019	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R9021	1-216-295-91	SHORT	0		
R9023	1-216-295-91	SHORT	0		
R9026	1-208-789-11	METAL CHIP	2K	0.5%	1/10W
R9031	1-208-789-11	METAL CHIP	2K	0.5%	1/10W
R9033	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R9034	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R9035	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R9036	1-216-049-11	RES-CHIP	1K	5%	1/10W
R9037	1-240-233-21	METAL OXIDE	100K	5%	3W
R9038	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R9039	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R9041	1-216-049-11	RES-CHIP	1K	5%	1/10W
R9042	1-216-049-11	RES-CHIP	1K	5%	1/10W
R9043	1-240-233-21	METAL OXIDE	100K	5%	3W
R9044	1-240-233-21	METAL OXIDE	100K	5%	3W
R9047	1-202-557-00	SOLID	220	20%	1/2W
R9048	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R9049	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R9050	1-249-424-11	CARBON	3.9K	5%	1/4W
R9051	1-202-557-00	SOLID	220	20%	1/2W
R9052	1-202-557-00	SOLID	220	20%	1/2W
R9053	1-249-424-11	CARBON	3.9K	5%	1/4W
R9054	1-249-424-11	CARBON	3.9K	5%	1/4W
R9055	1-243-994-91	CEMENTED	820K	5%	0.5W
R9056	1-219-752-11	CARBON	100K	5%	1/2W
R9057	1-220-827-91	RESISTOR	560K	5%	1/2W
R9058	1-243-994-91	CEMENTED	820K	5%	0.5W
R9059	1-219-746-11	CARBON	1K	5%	1/2W
R9061	1-219-743-11	CARBON	100	5%	1/2W
R9065	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R9068	1-216-101-00	RES-CHIP	150K	5%	1/10W
R9069	1-219-743-11	CARBON	100	5%	1/2W
R9070	1-216-037-00	RES-CHIP	330	5%	1/10W
R9071	1-216-037-00	RES-CHIP	330	5%	1/10W
R9072	1-216-037-00	RES-CHIP	330	5%	1/10W
R9073	1-216-057-00	RES-CHIP	2.2K	5%	1/10W

\<VARIABLE RESISTOR\>

REF NO.	PART NO.	DESCRIPTION
RV9001	1-241-656-11	RES, ADJ, METAL FILM 110M
RV9002	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M

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D

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF NO.	PART NO.	DESCRIPTION			REMARK
	A-1348-119-A	D BOARD COMPLETE (KV-ES38M31)			
	A-1348-113-A	D BOARD COMPLETE			
		(KV-ES38M61/ES38M90/ES38M91)			
		********************			
*	4-374-846-01	COVER, CAPACITOR, CAP TYPE			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
	4-382-854-21	SCREW (M3X14), P, SW (+)			
		<CAPACITOR>			
C6601	1-126-933-11	ELECT	100UF	20.00%	16V
C6602	1-129-720-00	FILM	0.033UF	5.00%	630V
C6604	1-126-947-11	ELECT	47UF	20.00%	16V
C6607 ⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C6608 ⚠	1-119-886-51	CERAMIC	470PF	10.00%	250V
C6613	1-161-830-00	CERAMIC	0.0047UF	99%	500V
C6614	1-161-830-00	CERAMIC	0.0047UF		500V
C6617	1-161-830-00	CERAMIC	0.0047UF		500V
C6619	1-161-830-00	CERAMIC	0.0047UF	99%	500V
C6621	1-131-940-11	ELECT	1200UF	20%	250V
C6622	1-131-940-11	ELECT	1200UF	20%	250V
C6625	1-129-718-00	FILM	0.022UF	5.00%	630V
C6626	1-130-029-00	FILM	8200PF	2.00%	50V
C6627	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6628	1-104-330-91	CERAMIC	470PF	10.00%	1KV
C6630	1-107-680-91	ELECT	22UF	20.00%	450V
C6631	1-126-964-11	ELECT	10UF	20.00%	50V
C6632	1-126-963-11	ELECT	4.7UF	20.00%	50V
C6633	1-126-947-11	ELECT	47UF	20.00%	25V
C6634	1-126-968-11	ELECT	100UF	20.00%	50V
C6635	1-102-973-00	CERAMIC	100PF	5.00%	50V
C6637	1-109-879-11	CERAMIC	22PF	5.00%	2KV
C6638	1-107-906-11	ELECT	10UF	20.00%	50V
C6639	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C6640	1-104-330-91	CERAMIC	470PF	10.00%	1KV
C6641	1-136-189-00	MYLAR	0.1UF	10.00%	250V
C6642	1-126-964-11	ELECT	10UF	20.00%	50V
C6643	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C6648	1-126-935-11	ELECT	470UF	20.00%	16V
C6649	1-126-933-11	ELECT	100UF	20.00%	16V
C6650	1-162-115-00	CERAMIC	330PF	10.00%	1KV
C6651	1-162-115-00	CERAMIC	330PF	10.00%	1KV
C6652	1-110-626-11	ELECT	330UF	20.00%	160V
C6653	1-137-368-11	MYLAR	0.0047UF	5.00%	50V
C6654	1-126-936-11	ELECT	3300UF	20.00%	16V
C6655	1-126-942-61	ELECT	1000UF	20.00%	25V
C6656	1-136-165-00	FILM	0.1UF	5.00%	50V
C6658	1-126-944-11	ELECT	3300UF	20.00%	25V
C6659	1-126-944-11	ELECT	3300UF	20.00%	25V
C6660	1-126-960-11	ELECT	1UF	20.00%	50V
C6661	1-107-888-11	ELECT	47UF	20.00%	25V
C6662	1-126-947-11	ELECT	47UF	20.00%	16V
C6663	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6664	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6665	1-126-964-11	ELECT	10UF	20.00%	50V
C6666	1-137-150-11	MYLAR	0.01UF	5.00%	50V
C6668	1-126-947-11	ELECT	47UF	20.00%	16V
C6669	1-162-115-00	CERAMIC	330PF	10.00%	1KV
C6670	1-162-115-00	CERAMIC	330PF	10.00%	1KV
C6671	1-129-718-00	FILM	0.022UF	5.00%	630V

REF NO.	PART NO.	DESCRIPTION			REMARK
C6672	1-104-331-11	CERAMIC	0.0022UF	10.00%	1KV
C6673	1-104-331-11	CERAMIC	0.0022UF	10.00%	1KV
C6674	1-128-527-11	ELECT	330UF	20.00%	25V
C6678	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C6679	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C6680	1-136-157-00	FILM	0.022UF	5.00%	50V
C6800	1-126-964-11	ELECT	10UF	20.00%	50V
C6801	1-126-960-11	ELECT	1UF	20.00%	50V
C6802	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6803	1-102-129-00	CERAMIC	0.01UF	10.00%	50V
C6804	1-102-129-00	CERAMIC	0.01UF	10.00%	50V
C6805	1-111-087-11	ELECT	330UF	20.00%	25V
C6806	1-107-933-11	ELECT	100UF	20.00%	100V
C6808	1-137-401-11	MYLAR	0.22UF	10.00%	100V
C6809	1-102-074-00	CERAMIC	0.001UF	10.00%	50V
C6810	1-106-220-00	MYLAR	0.1UF	10.00%	100V
C6811	1-111-087-11	ELECT	330UF	20.00%	25V
C6812	1-130-785-11	MYLAR	0.47UF	10.00%	100V
C6813	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C6814	1-115-565-11	CERAMIC CHIP	2.2UF	10.00%	10V
C6815	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C6816	1-137-577-11	FILM	0.068UF	5.00%	400V
C6817	1-126-947-11	ELECT	47UF	20.00%	16V
C6818	1-126-960-11	ELECT	1UF	20.00%	50V
C6819	1-126-960-11	ELECT	1UF	20.00%	50V
C6820	1-102-114-00	CERAMIC	470PF	10.00%	50V
C6821	1-106-383-00	MYLAR	0.047UF	10.00%	200V
C6822	1-102-114-00	CERAMIC	470PF	10.00%	50V
C6823	1-106-383-00	MYLAR	0.047UF	10.00%	200V
C6826	1-102-030-00	CERAMIC	330PF	10.00%	500V
C6827	1-102-030-00	CERAMIC	330PF	10.00%	500V
C6828	1-107-364-11	MYLAR	0.01UF	10.00%	200V
C6829	1-162-115-00	CERAMIC	330PF	10.00%	2KV
C6830	1-117-619-11	FILM	1000PF	3.00%	1.2KV
C6831	1-117-838-21	FILM	8200PF	3.00%	1.5KV
C6832	1-117-842-21	FILM	12000PF	3.00%	1.5KV
C6833	1-127-680-11	FILM MELF	4700PF	2%	100V
C6834	1-125-893-11	FILM	680PF	3.00%	1.5KV
C6835	1-125-893-11	FILM	680PF	3.00%	1.5KV
C6836	1-127-681-11	FILM MELF	10000PF	2%	100V
C6837	1-125-893-11	FILM	680PF	3.00%	1.5KV
C6838	1-125-893-11	FILM	680PF	3.00%	1.5KV
C6839	1-126-933-11	ELECT	100UF	20.00%	16V
C6840	1-126-933-11	ELECT	100UF	20.00%	16V
C6841	1-115-511-11	FILM	0.12UF	5.00%	250V
C6842	1-117-673-11	FILM	1.5UF	5.00%	250V
C6843	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C6844	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C6845	1-117-664-11	FILM	0.27UF	5.00%	250V
C6846	1-115-514-11	FILM	0.22UF	5.00%	250V
C6847	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6848	1-113-979-51	FILM	0.047UF	5%	250V
C6849	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C6850	1-115-339-11	CERAMIC CHIP	0.1UF	10.00%	50V
C6851	1-107-639-11	ELECT	47UF	20.00%	160V
C6853	1-102-228-00	CERAMIC	470PF	10.00%	500V
C6854	1-126-941-11	ELECT	470UF	20.00%	25V
C6855	1-123-024-21	ELECT	33UF		160V
C6856	1-126-971-11	ELECT	470UF	20.00%	50V
C6857	1-102-228-00	CERAMIC	470PF	10.00%	500V
C6858	1-102-228-00	CERAMIC	470PF	10.00%	500V
C6859	1-162-129-00	CERAMIC	150PF	10.00%	2KV

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REF NO.	PART NO.	DESCRIPTION			REMARK
C6860	1-162-129-00	CERAMIC	150PF	10.00%	2KV
C6862	1-130-202-00	FILM	0.022UF	5.00%	200V
C6863	1-107-906-11	ELECT	10UF	20.00%	50V
C6864	1-129-898-00	FILM	0.0022UF	5.00%	630V
C6865	1-130-202-00	FILM	0.022UF	5.00%	400V
C6866	1-102-030-00	CERAMIC	330PF	10.00%	500V
C6867	1-130-785-11	MYLAR	0.47UF	10.00%	100V
C6868	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6869	1-107-882-91	ELECT	100UF	20.00%	16V
C6870	1-128-528-11	ELECT	470UF	20.00%	25V
C6871	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C6872	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C6874	1-136-165-00	FILM	0.1UF	5.00%	50V
C6875	1-126-947-11	ELECT	47UF	20.00%	16V
C6876	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6877	1-126-964-11	ELECT	10UF	20.00%	50V
C6878	1-126-320-11	ELECT	10UF	20.00%	16V
C6879	1-107-960-11	ELECT	4.7UF	20.00%	160V
C6880	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6882	1-104-574-11	CERAMIC	0.0047UF	10.00%	2KV
C6883	1-126-965-91	ELECT	22UF	20.00%	50V
C6884	1-115-565-11	CERAMIC CHIP	2.2UF	10.00%	10V

\<CONNECTOR\>

REF NO.	PART NO.	DESCRIPTION
CN6602⚠*	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P
CN6603⚠*	1-573-963-11	PIN, CONNECTOR (PC BOARD) 3P
CN6604⚠*	1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P
CN6605⚠*	1-764-333-11	PLUG, CONNECTOR 10P
CN6606 *	1-564-510-11	PLUG, CONNECTOR 7P
CN6608 *	1-564-506-11	PLUG, CONNECTOR 3P
CN6609 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6610 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6611 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6612 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6613 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6614 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6615 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6616 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6618 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6800	1-785-802-11	PIN, CONNECTOR (WITH PWB) 20P
CN6801⚠*	1-785-270-12	PIN, DY CONNECTOR (PC BOARD)
CN6802	1-793-495-11	CONNECTOR, BOARD TO BOARD 50P
CN6810	1-785-879-11	CONNECTOR, ONE TOUCH
CN6811 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN6812 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P

\<DIODE\>

REF NO.	PART NO.	DESCRIPTION
D6601	8-719-911-19	1SS119-25
D6605	8-719-510-53	D4SB60L
D6612	8-719-911-55	U05G
D6613	8-719-911-55	U05G
D6614	8-719-110-30	RD12ES-B1
D6615	8-719-911-19	1SS119-25
D6616	8-719-911-55	U05G
D6617	8-719-911-55	U05G
D6618	8-719-404-50	MA111-TX
D6619	8-719-110-30	RD12ES-B1
D6621	8-719-063-73	DIODE D1NL20U-TR
D6622	8-719-979-64	UF4005PKG23

REF NO.	PART NO.	DESCRIPTION	REMARK
D6623	8-719-059-23	P6KE200AG23	
D6624	8-719-510-02	D1NS4	
D6625	8-719-110-36	RD13ES-B2	
D6626	8-719-979-64	UF4005PKG23	
D6628	8-719-063-73	DIODE D1NL20U-TR	
D6631	8-719-050-18	D4SBL20U	
D6633	8-719-510-12	D10SC4M	
D6634	8-719-060-88	DIODE D4SBS6	
D6635	8-719-110-47	RD18ESB	
D6636	8-719-911-19	1SS119-25	
D6639	8-719-063-73	DIODE D1NL20U-TR	
D6640	8-719-110-72	RD30ESB2	
D6641	8-719-109-96	RD6.8ES-B1	
D6642	8-719-911-19	1SS119-25	
D6643	8-719-979-64	UF4005PKG23	
D6644	8-719-052-92	D10SBS4F	
D6650	8-719-911-19	1SS119-25	
D6800	8-719-110-03	RD7.5ESB2	
D6801	8-719-911-19	1SS119-25	
D6803	8-719-510-73	S3L20UF4	
D6805	8-719-110-39	RD15ES-B1	
D6806	8-719-911-19	1SS119-25	
D6807	8-719-109-68	RD3.6ES-B1	
D6808	8-719-914-43	DAN202K	
D6809	8-719-908-03	GP08D	
D6813	8-719-302-43	EL1Z	
D6814	8-719-018-82	RGP02-20EL-6394	
D6816	8-719-510-73	S3L20UF4	
D6817	8-719-510-73	S3L20UF4	
D6820	8-719-970-87	ERA38-06	
D6821	8-719-970-87	ERA38-06	
D6822	8-719-067-18	RN4Z	
D6823	8-719-911-19	1SS119-25	
D6824	8-719-510-73	S3L20UF4	
D6825	8-719-914-43	DAN202K	
D6826	8-719-911-19	1SS119-25	

\<FERRITE BEAD\>

REF NO.	PART NO.	DESCRIPTION
FB6602	1-239-358-21	FILTER, NOISE
FB6603	1-239-358-21	FILTER, NOISE

\<IC\>

REF NO.	PART NO.	DESCRIPTION
IC6603	8-749-016-66	MCR5152
IC6604	8-759-468-89	TOP209P
IC6606	8-759-450-47	BA05T
IC6607	8-749-012-13	DM-58
IC6800	8-759-192-71	STV9379
IC6801	8-759-450-95	LM393N
IC6804	8-759-394-36	BA09T
IC6805	8-759-394-35	BA12T
IC6806	8-749-013-76	PQ6RD83B

\<CHIP CONDUCTOR\>

REF NO.	PART NO.	DESCRIPTION	
JR6601	1-216-295-91	SHORT	0
JR6603	1-216-295-91	SHORT	0
JR6605	1-216-296-11	SHORT	0
JR6606	1-216-296-11	SHORT	0
JR6607	1-216-295-91	SHORT	0

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK
JR6608	1-216-296-11	SHORT	0	
JR6609	1-216-295-91	SHORT	0	
JR6610	1-216-296-11	SHORT	0	
JR6613	1-216-295-91	SHORT	0	
JR6802	1-216-296-11	SHORT	0	
JR6810	1-216-296-11	SHORT	0	
		<COIL>		
L6601	1-412-525-31	INDUCTOR	10UH	
L6602	1-410-397-21	FERRITE	1.1UH	
L6603	1-410-397-21	FERRITE	1.1UH	
L6604	1-412-525-31	INDUCTOR	10UH	
L6605	1-412-525-31	INDUCTOR	10UH	
L6606	1-412-525-31	INDUCTOR	10UH	
L6607	1-412-519-11	INDUCTOR	3.3UH	
L6800	1-412-525-31	INDUCTOR	10UH	
L6801	1-406-986-21	INDUCTOR	3.3UH	
L6802	1-416-775-21	INDUCTOR	1MH	
L6803	1-406-982-11	INDUCTOR	680UH	
L6804	1-412-519-11	INDUCTOR	3.3UH	
L6805	1-412-519-11	INDUCTOR	3.3UH	
L6806	1-412-519-11	INDUCTOR	3.3UH	
L6807	1-412-552-11	INDUCTOR	2.2MH	
L6808	1-406-674-11	INDUCTOR	3.3MH	
		<PHOTO COUPLER>		
PH6601	8-749-924-35	ON3171-R		
PH6602	8-749-924-35	ON3171-R		
		<IC LINK>		
PS6605	1-533-597-41	LINK, IC		
PS6606	1-533-597-41	LINK, IC		
PS6607	1-533-597-41	LINK, IC		
PS6801	1-532-841-21	LINK, IC		
		<TRANSISTOR>		
Q6601	8-729-119-78	2SC2785-HFE		
Q6604	8-729-119-76	2SA1175-HFE		
Q6605	8-729-230-49	2SC2712-YG		
Q6606	8-729-140-93	2SB733-34		
Q6608	8-729-200-21	2SC2500-B		
Q6609	8-729-029-56	DTA144ESA		
Q6610	8-729-119-78	2SC2785-HFE		
Q6611	8-729-029-66	DTC114ESA		
Q6612	8-729-029-66	DTC114ESA		
Q6613	8-729-030-02	DTC144ESA		
Q6800	8-729-422-33	2SD601A-Q-TX		
Q6801	8-729-039-68	IRF620		
Q6802	8-729-025-19	IRFI740G		
Q6803	8-729-119-76	2SA1175-HFE		
Q6804	8-729-119-78	2SC2785-HFE		
Q6805	8-729-140-96	2SD774-34		
Q6806	8-729-140-96	2SD774-34		
Q6807	8-729-046-18	2SC5480-01		
Q6808	8-729-046-18	2SC5480-01		
Q6809	8-729-038-83	TRANSISTOR 2SK2251-01-F19		

REF NO.	PART NO.	DESCRIPTION		REMARK		
Q6810	8-729-047-60	IRFI830G-LF49				
Q6811	1-801-806-11	TR DTC144EKA				
Q6812	8-729-043-95	2SC3840(3)				
Q6813	8-729-422-33	2SD601A-Q-TX				
Q6814	8-729-026-49	2SA1037AK-T146-R				
Q6815	8-729-045-65	2SA1776TV2Q				
Q6816	8-729-140-96	2SD774-34				
Q6817	8-729-422-33	2SD601A-Q-TX				
Q6818	1-801-806-11	TR DTC144EKA				
Q6819	1-801-806-11	TR DTC144EKA				
Q6820	8-729-422-33	2SD601A-Q-TX				
Q6821	8-729-026-49	2SA1037AK-T146-R				
Q6822	8-729-026-49	2SA1037AK-T146-R				
Q6823	8-729-422-33	2SD601A-Q-TX				
		<RESISTOR>				
R6500	1-220-797-11	CEMENTED	0.47	5%	10W	
R6600	1-216-295-91	SHORT	0			
R6602	1-249-417-11	CARBON	1K	5%	1/4W	
R6622	1-220-797-11	CEMENTED	0.47	5%	10W	
R6638	1-240-876-11	CEMENTED	1	5%	15W	
R6639	1-240-876-11	CEMENTED	1	5%	15W	
R6641	1-260-131-11	CARBON	470K	5%	1/2W	
R6642	1-260-131-11	CARBON	470K	5%	1/2W	
R6645	1-202-933-61	FUSIBLE	0.1	10%	1/2W	
R6647	1-215-864-00	METAL OXIDE	150	5%	1W	
R6648	1-215-481-00	METAL	330K	1%	1/4W	
R6649	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R6650	1-215-481-00	METAL	330K	1%	1/4W	
R6651	1-215-430-00	METAL	2.4K	1%	1/4W	
R6652	1-215-450-00	METAL	16K	1%	1/4W	
R6653	1-219-776-11	CARBON	2.2M	10%	1/2W	
R6654	1-216-089-91	RES-CHIP	47K	5%	1/10W	
R6655	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6656	1-215-481-00	METAL	330K	1%	1/4W	
R6657	1-247-791-91	CARBON	22	5%	1/4W	
R6658	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6659	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6660	1-249-389-11	CARBON	4.7	5%	1/4W	
R6661	1-215-421-00	METAL	1K	1%	1/4W	
R6662	1-216-381-11	METAL OXIDE	0.22	5%	3W	
R6663	1-216-381-11	METAL OXIDE	0.22	5%	3W	
R6665	1-219-776-11	CARBON	2.2M	10%	1/2W	
R6666	1-208-782-11	METAL CHIP	1K	0.5%	1/10W	
R6667	1-249-413-11	CARBON	470	5%	1/4W	
R6668	1-216-017-91	RES-CHIP	47	5%	1/10W	
R6669	1-249-417-11	CARBON	1K	5%	1/4W	
R6672	1-249-421-11	CARBON	2.2K	5%	1/4W	
R6674	1-249-418-11	CARBON	1.2K	5%	1/4W	
R6679	1-249-437-11	CARBON	47K	5%	1/4W	
R6680	1-216-362-11	METAL OXIDE	0.27	5%	2W	
R6681	1-249-429-11	CARBON	10K	5%	1/4W	
R6682	1-249-416-11	CARBON	820	5%	1/4W	
R6683	1-260-127-11	CARBON	220K	5%	1/2W	
R6685	1-249-421-11	CARBON	2.2K	5%	1/4W	
R6686 ⚠	1-240-917-91	METAL	8.2M	5%	1W	
R6688	1-249-417-11	CARBON	1K	5%	1/4W	
R6689	1-249-389-11	CARBON	4.7	5%	1/4W	
R6690	1-249-429-11	CARBON	10K	5%	1/4W	
R6691	1-260-131-11	CARBON	470K	5%	1/2W	
R6692	1-249-410-11	CARBON	270	5%	1/4W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R6693	1-215-451-00	METAL	18K	1%	1/4W
R6694	1-215-471-00	METAL	120K	1%	1/4W
R6696	1-215-925-11	METAL OXIDE	22K	5%	3W
R6697	1-249-429-11	CARBON	10K	5%	1/4W
R6698	1-249-417-11	CARBON	1K	5%	1/4W
R6704	1-249-377-11	CARBON	0.47	5%	1/4W
R6707	1-249-421-11	CARBON	2.2K	5%	1/4W
R6710	1-217-158-00	METAL	0.47	10%	5W
R6713	1-249-423-11	CARBON	3.3K	5%	1/4W
R6714	1-249-423-11	CARBON	3.3K	5%	1/4W
R6715	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6716	1-247-903-00	CARBON	1M	5%	1/4W
R6800	1-249-429-11	CARBON	10K	5%	1/4W
R6801	1-249-429-11	CARBON	10K	5%	1/4W
R6802	1-249-429-11	CARBON	10K	5%	1/4W
R6803	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6804	1-208-795-11	METAL CHIP	3.6K	0.5%	1/10W
R6805	1-215-441-00	METAL	6.8K	1%	1/4W
R6806	1-215-434-00	METAL	3.6K	1%	1/4W
R6807	1-249-383-11	CARBON	1.5	5%	1/4W
R6810	1-214-798-21	METAL	1.8	1%	1/2W
R6811	1-215-913-11	METAL OXIDE	220	5%	3W
R6812	1-247-843-11	CARBON	3.3K	5%	1/4W
R6813	1-214-798-21	METAL	1.8	1%	1/2W
R6814	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6815	1-208-801-11	METAL CHIP	6.2K	0.5%	1/10W
R6816	1-214-915-00	METAL	120K	1%	1/2W
R6818	1-215-485-00	METAL	470K	1%	1/4W
R6819	1-249-421-11	CARBON	2.2K	5%	1/4W
R6820	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6822	1-216-461-00	METAL OXIDE	5.6K	5%	2W
R6823	1-215-895-11	METAL OXIDE	3.3K	5%	2W
R6824	1-247-807-31	CARBON	100	5%	1/4W
R6825	1-247-807-31	CARBON	100	5%	1/4W
R6826	1-215-894-11	METAL OXIDE	2.2K	5%	2W
R6827	1-216-459-00	METAL OXIDE	2.7K	5%	2W
R6828	1-249-411-11	CARBON	330	5%	1/4W
R6829	1-249-411-11	CARBON	330	5%	1/4W
R6830	1-247-764-11	CARBON	10K	5%	1/2W
R6831	1-247-764-11	CARBON	10K	5%	1/2W
R6832	1-215-477-00	METAL	220K	1%	1/4W
R6833	1-215-493-00	METAL	1M	1%	1/4W
R6834	1-216-381-11	METAL OXIDE	0.22	5%	3W
R6835	1-216-381-11	METAL OXIDE	0.22	5%	3W
R6836	1-215-905-11	METAL OXIDE	10	5%	3W
R6837	1-215-905-11	METAL OXIDE	10	5%	3W
R6838	1-215-461-00	METAL	47K	1%	1/4W
R6839	1-249-405-11	CARBON	100	5%	1/4W
R6840	8-719-110-39	RD15ES-B1			
R6840	8-719-923-86	MTZJ-T-77-15			
R6841	1-216-434-11	METAL OXIDE	1.8K	5%	1W
R6842	1-215-923-00	METAL OXIDE	10K	5%	3W
R6843	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6844	1-247-807-31	CARBON	100	5%	1/4W
R6845	1-208-826-11	METAL CHIP	68K	0.5%	1/10W
R6846	1-260-127-11	CARBON	220K	5%	1/2W
R6847	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6848	1-216-101-00	RES-CHIP	150K	5%	1/10W
R6851	1-260-288-11	CARBON	0.47	5%	1/2W
R6852	1-216-345-11	METAL OXIDE	0.47	5%	1W
R6853	1-260-288-11	CARBON	0.47	5%	1/2W
R6854	1-215-923-00	METAL OXIDE	10K	5%	3W

REF NO.	PART NO.	DESCRIPTION		REMARK	
R6855	1-214-898-81	METAL	24K	1%	1/2W
R6856	1-215-923-00	METAL OXIDE	10K	5%	3W
R6857	1-215-923-00	METAL OXIDE	10K	5%	3W
R6858	1-214-898-81	METAL	24K	1%	1/2W
R6859	1-215-871-11	METAL OXIDE	2.2K	5%	1W
R6860	1-215-923-00	METAL OXIDE	10K	5%	3W
R6861	1-216-295-91	SHORT	0		
R6862	1-216-081-00	RES-CHIP	22K	5%	1/10W
R6863	1-215-894-11	METAL OXIDE	2.2K	5%	2W
R6864	1-216-081-00	RES-CHIP	22K	5%	1/10W
R6865	1-216-101-00	RES-CHIP	150K	5%	1/10W
R6866	1-215-431-00	METAL	2.7K	1%	1/4W
R6867	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6868	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6869	1-216-113-00	RES-CHIP	470K	5%	1/10W
R6870	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6871	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R6872	1-260-125-11	CARBON	150K	5%	1/2W
R6873	1-260-125-11	CARBON	150K	5%	1/2W
R6875	1-249-417-11	CARBON	1K	5%	1/4W
R6876	1-260-288-11	CARBON	0.47	5%	1/2W
R6877	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R6878	1-208-770-11	METAL CHIP	330	0.5%	1/10W
R6879	1-216-105-91	RES-CHIP	220K	5%	1/10W
R6880	1-215-441-00	METAL	6.8K	1%	1/4W
R6881	1-215-447-00	METAL	12K	1%	1/4W
R6882	1-215-453-00	METAL	22K	1%	1/4W
R6883	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R6884	1-249-441-11	CARBON	100K	5%	1/4W
R6885	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R6886	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R6887	1-216-081-00	RES-CHIP	22K	5%	1/10W
R6888	1-216-089-91	RES-CHIP	47K	5%	1/10W
R6889	1-260-125-11	CARBON	150K	5%	1/2W
R6890	1-260-125-11	CARBON	150K	5%	1/2W
R6891	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R6892	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6893	1-216-085-91	RES-CHIP	33K	5%	1/10W
R6894	1-260-133-11	CARBON	680K	5%	1/2W
R6895	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6896	1-216-089-91	RES-CHIP	47K	5%	1/10W
R6897	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6899	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6900	1-208-810-11	METAL CHIP	15K	0.5%	1/10W
R6901	1-208-810-11	METAL CHIP	15K	0.5%	1/10W
R6902	1-249-441-11	CARBON	100K	5%	1/4W
R6903	1-215-923-00	METAL OXIDE	10K	5%	3W
R6905	1-249-389-11	CARBON	4.7	5%	1/4W
R6906	1-216-079-00	RES-CHIP	18K	5%	1/10W
R6907	1-216-079-00	RES-CHIP	18K	5%	1/10W
R6908	1-202-719-00	SOLID	1M	20%	1/2W

		<RELAY>			
RY6601	1-515-840-11	RELAY			
RY6603	1-755-357-11	RELAY, AC POWER			

		<TRANSFORMER>			
T6601	⚠ 1-431-732-11	TRANSFORMER, CONVERTER (SRT)			
T6602	⚠ 1-435-081-11	TRANSFORMER, CONVERTER (PIT)			

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
T6800	1-429-741-11	TRANSFORMER, DRIVE			
T6801	1-433-934-11	TRANSFORMER, FERRITE (DFT)			
T6802	1-433-489-11	TRANSFORMER, FERRITE (HDT)			
T6803 ⚠	1-453-332-21	TRANSFORMER ASSY FLY BACK (NX-4601//J1B4) (KV-ES38M31)			
T6803 ⚠	1-453-360-11	TRANSFORMER ASSY FLY BACK (NX-4601//J1J4)(EXCEPT KV-ES38M31)			
T6804	1-433-489-11	TRANSFORMER, FERRITE (HDT)			

\<THERMISTOR\>

TH6601	1-803-540-11	THERMISTOR			
TH6603	1-803-586-11	THERMISTOR, NTC			

\<VARISTOR\>

VD6601	1-803-614-11	VARISTOR			
VD6603	1-803-830-11	VARISTOR (ERZV14D621)			

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* A-1333-171-A		D1 BOARD MOUNTED			
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	4-382-854-11	SCREW (M3X10), P, SW (+)			

\<CAPACITOR\>

REF NO.	PART NO.	DESCRIPTION		REMARK	
C6101	1-107-714-11	ELECT	10UF	20.00%	50V
C6102	1-109-953-11	ELECT	2.2UF	20.00%	50V
C6103	1-107-714-11	ELECT	10UF	20.00%	50V
C6104	1-126-947-11	ELECT	47UF	20.00%	16V
C6105	1-126-933-11	ELECT	100UF	20.00%	16V
C6108	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6109	1-126-947-11	ELECT	47UF	20.00%	25V
C6111	1-126-933-11	ELECT	100UF	20.00%	16V
C6112	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C6113	1-137-493-11	FILM	0.0047UF	5.00%	630V
C6114	1-107-909-11	ELECT	47UF	20.00%	16V
C6115	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C6116	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C6117	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C6118	1-107-909-11	ELECT	47UF	20.00%	16V
C6121	1-126-963-11	ELECT	4.7UF	20.00%	50V
C6122	1-126-947-11	ELECT	47UF	20.00%	16V
C6123	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6124	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6125	1-128-551-11	ELECT	22UF	20.00%	25V
C6127	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6128	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6129	1-126-964-11	ELECT	10UF	20.00%	50V
C6131	1-126-964-11	ELECT	10UF	20.00%	50V
C6133	1-137-194-81	FILM	0.47UF	5.00%	50V
C6136	1-129-716-00	FILM	0.015UF	5.00%	630V
C6138	1-126-968-11	ELECT	100UF	20.00%	50V
C6139	1-107-902-11	ELECT	1UF	20.00%	50V
C6140	1-126-960-11	ELECT	1UF	20.00%	50V
C6201	1-126-947-11	ELECT	47UF	20.00%	25V
C6202	1-126-947-11	ELECT	47UF	20.00%	16V
C6203	1-126-947-11	ELECT	47UF	20.00%	16V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C6204	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6205	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C6206	1-126-964-11	ELECT	10UF	20.00%	50V
C6207	1-126-947-11	ELECT	47UF	20.00%	16V
C6208	1-126-947-11	ELECT	47UF	20.00%	25V
C6209	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C6210	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C6211	1-126-964-11	ELECT	10UF	20.00%	50V
C6212	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6219	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C6220	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C6350	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6351	1-126-947-11	ELECT	47UF	20.00%	16V
C6353	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C6355	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C6356	1-163-809-11	CERAMIC CHIP	0.047UF	10.00%	25V
C6358	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6361	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6362	1-164-182-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C6365	1-163-809-11	CERAMIC CHIP	0.047UF	10.00%	25V
C6376	1-126-947-11	ELECT	47UF	20.00%	16V
C6377	1-126-947-11	ELECT	47UF	20.00%	16V
C6378	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C6380	1-136-495-11	FILM	0.068UF	5.00%	50V
C6381	1-126-964-11	ELECT	10UF	20.00%	50V
C6385	1-126-947-11	ELECT	47UF	20.00%	16V
C6386	1-126-947-11	ELECT	47UF	20.00%	16V
C6388	1-126-964-11	ELECT	10UF	20.00%	50V
C6392	1-126-947-11	ELECT	47UF	20.00%	16V
C6409	1-126-963-11	ELECT	4.7UF	20.00%	50V

\<CONNECTOR\>

CN6100	1-793-498-11	CONNECTOR, BOARD TO BOARD 50P	
CN6101 *	1-564-525-11	PLUG, CONNECTOR 10P	
CN6103 *	1-564-518-11	PLUG, CONNECTOR 3P	
CN6104 *	1-564-523-11	PLUG, CONNECTOR 8P	

\<DIODE\>

D6101	8-719-510-02	D1NS4	
D6102	8-719-510-02	D1NS4	
D6103	8-719-063-73	DIODE D1NL20U-TR	
D6104	8-719-911-19	1SS119-25	
D6105	8-719-109-60	RD2.7ESB2	
D6106	8-719-510-02	D1NS4	
D6107	8-719-911-19	1SS119-25	
D6108	8-719-911-19	1SS119-25	
D6110	8-719-987-87	ERA85-009	
D6112	8-719-911-19	1SS119-25	
D6133	8-719-911-19	1SS119-25	
D6134	8-719-911-19	1SS119-25	
D6135	8-719-911-19	1SS119-25	
D6201	8-719-109-88	RD5.6ES-B1	
D6210	8-719-109-88	RD5.6ES-B1	
D6350	8-719-914-43	DAN202K	
D6351	8-719-914-43	DAN202K	
D6355	8-719-914-43	DAN202K	
D6404	8-719-914-43	DAN202K	

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REF NO.	PART NO.	DESCRIPTION		REMARK
		<IC>		
IC6101	8-752-053-21	CXA1211M		
IC6102	8-759-450-95	LM393N		
IC6103	8-759-450-95	LM393N		
IC6104	8-759-803-42	LA6500-FA		
IC6105	8-759-450-95	LM393N		
IC6106	8-759-682-42	MM1431ATT		
IC6108	8-759-567-08	MB88141APF-ER		
IC6201	8-759-183-37	CA0007AD		
IC6202	8-759-135-80	UPC358C		
IC6351	8-759-450-95	LM393N		
IC6353	8-759-231-53	TA7805S		
IC6354	8-759-325-48	CA0005AD		
IC6356	8-759-822-38	LA6510		
		<CHIP CONDUCTOR>		
JR6101	1-216-296-11	SHORT	0	
JR6102	1-216-296-11	SHORT	0	
JR6103	1-216-296-11	SHORT	0	
JR6104	1-216-295-91	SHORT	0	
JR6108	1-216-296-11	SHORT	0	
JR6109	1-216-296-11	SHORT	0	
JR6110	1-216-296-11	SHORT	0	
JR6111	1-216-296-11	SHORT	0	
JR6112	1-216-296-11	SHORT	0	
JR6113	1-216-296-11	SHORT	0	
JR6114	1-216-296-11	SHORT	0	
JR6115	1-216-296-11	SHORT	0	
JR6116	1-216-295-91	SHORT	0	
JR6117	1-216-295-91	SHORT	0	
		<COIL>		
L6101	1-416-920-11	INDUCTOR	10MH	
L6102	1-406-989-21	INDUCTOR	10MH	
		<IC LINK>		
PS6101	1-533-589-31	LINK, IC		
		<TRANSISTOR>		
Q6103	8-729-046-33	IRF720-LF49		
Q6104	8-729-230-49	2SC2712-YG		
Q6105	8-729-230-49	2SC2712-YG		
Q6106	8-729-026-49	2SA1037AK-T146-R		
Q6107	8-729-140-93	2SB733-34		
Q6109	8-729-026-49	2SA1037AK-T146-R		
Q6110	1-801-806-11	TR DTC144EKA		
Q6118	8-729-230-49	2SC2712-YG		
Q6124	1-801-806-11	TR DTC144EKA		
Q6125	8-729-230-49	2SC2712-YG		
Q6126	8-729-026-49	2SA1037AK-T146-R		
Q6128	8-729-023-22	2SD2114K		
Q6201	8-729-230-49	2SC2712-YG		
Q6202	8-729-230-49	2SC2712-YG		
Q6203	8-729-422-33	2SD601A-Q-TX		
Q6350	8-729-230-49	2SC2712-YG		
Q6356	8-729-230-49	2SC2712-YG		
Q6405	8-729-026-49	2SA1037AK-T146-R		
Q6455	8-729-230-49	2SC2712-YG		

REF NO.	PART NO.	DESCRIPTION			REMARK	
		<RESISTOR>				
R6101	1-216-025-11	RES-CHIP	100	5%	1/10W	
R6103	1-216-025-11	RES-CHIP	100	5%	1/10W	
R6105	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	
R6106	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	
R6107	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R6108	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6109	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6110	1-216-295-91	SHORT	0			
R6113	1-208-822-11	METAL CHIP	47K	0.5%	1/10W	
R6114	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	
R6115	1-208-814-91	METAL CHIP	22K	0.5%	1/10W	
R6116	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	
R6117	1-208-782-11	METAL CHIP	1K	0.5%	1/10W	
R6118	1-208-810-11	METAL CHIP	15K	0.5%	1/10W	
R6119	1-208-796-11	METAL CHIP	3.9K	0.5%	1/10W	
R6120	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	
R6121	1-216-490-11	METAL OXIDE	39K	5%	3W	
R6122	1-216-295-91	SHORT	0			
R6123	1-208-782-11	METAL CHIP	1K	0.5%	1/10W	
R6124	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W	
R6126	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	
R6127	1-208-832-11	METAL CHIP	120K	0.5%	1/10W	
R6128	1-208-838-91	METAL CHIP	220K	0.5%	1/10W	
R6129	1-216-353-00	METAL OXIDE	2.2	5%	1W	
R6130	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6131	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	
R6133	1-208-812-11	METAL CHIP	18K	0.5%	1/10W	
R6134	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	
R6135	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6136	1-260-328-11	CARBON	1K	5%	1/2W	
R6137	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R6138	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	
R6139	1-208-808-11	METAL CHIP	12K	0.5%	1/10W	
R6140	1-216-077-91	RES-CHIP	15K	5%	1/10W	
R6141	1-208-830-11	METAL CHIP	100K	0.5%	1/10W	
R6142	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	
R6143	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W	
R6146	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	
R6149	1-208-828-11	METAL CHIP	82K	0.5%	1/10W	
R6150	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	
R6151	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R6152	1-216-081-00	RES-CHIP	22K	5%	1/10W	
R6153	1-216-105-91	RES-CHIP	220K	5%	1/10W	
R6154	1-208-808-11	METAL CHIP	12K	0.5%	1/10W	
R6155	1-208-822-11	METAL CHIP	47K	0.5%	1/10W	
R6156	1-216-077-91	RES-CHIP	15K	5%	1/10W	
R6157	1-216-089-91	RES-CHIP	47K	5%	1/10W	
R6158	1-216-689-11	RES-CHIP	39K	5%	1/10W	
R6159	1-208-797-11	METAL CHIP	4.3K	0.5%	1/10W	
R6160	1-216-073-91	RES-CHIP	10K	5%	1/10W	
R6161	1-208-814-91	METAL CHIP	22K	0.5%	1/10W	
R6162	1-216-049-11	RES-CHIP	1K	5%	1/10W	
R6168	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	
R6169	1-208-776-11	METAL CHIP	560	0.5%	1/10W	
R6170	1-216-037-00	RES-CHIP	330	5%	1/10W	
R6171	1-216-113-00	RES-CHIP	470K	5%	1/10W	
R6172	1-216-105-91	RES-CHIP	220K	5%	1/10W	
R6173	1-216-093-91	RES-CHIP	68K	5%	1/10W	
R6174	1-208-812-11	METAL CHIP	18K	0.5%	1/10W	
R6175	1-208-816-11	METAL CHIP	27K	0.5%	1/10W	

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R6176	1-249-389-11	CARBON	4.7	5%	1/4W
R6177	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6178	1-249-389-11	CARBON	4.7	5%	1/4W
R6180	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6190	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6192	1-216-295-91	SHORT	0		
R6195	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R6196	1-249-377-11	CARBON	0.47	5%	1/4W
R6197	1-216-099-00	RES-CHIP	120K	5%	1/10W
R6198	1-216-093-91	RES-CHIP	68K	5%	1/10W
R6200	1-208-826-11	METAL CHIP	68K	0.5%	1/10W
R6201	1-247-750-11	CARBON	680	5%	1/2W
R6202	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R6203	1-215-906-11	METAL OXIDE	15	5%	3W
R6204	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6206	1-216-033-00	RES-CHIP	220	5%	1/10W
R6207	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R6208	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R6209	1-216-107-00	RES-CHIP	270K	5%	1/10W
R6210	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6211	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6212	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6213	1-216-105-91	RES-CHIP	220K	5%	1/10W
R6215	1-208-836-11	METAL CHIP	180K	0.5%	1/10W
R6216	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R6217	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6218	1-208-836-11	METAL CHIP	180K	0.5%	1/10W
R6219	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R6220	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R6221	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R6222	1-216-295-91	SHORT	0		
R6223	1-216-295-91	SHORT	0		
R6224	1-208-824-11	METAL CHIP	56K	0.5%	1/10W
R6225	1-208-824-11	METAL CHIP	56K	0.5%	1/10W
R6226	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R6227	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R6324	1-216-017-91	RES-CHIP	47	5%	1/10W
R6325	1-216-017-91	RES-CHIP	47	5%	1/10W
R6326	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R6327	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R6350	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R6357	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6359	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6360	1-216-073-91	RES-CHIP	10K	5%	1/10W
R6361	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6367	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R6368	1-208-810-11	METAL CHIP	15K	0.5%	1/10W
R6375	1-216-041-00	RES-CHIP	470	5%	1/10W
R6378	1-215-473-00	METAL	150K	1%	1/4W
R6379	1-216-295-91	SHORT	0		
R6382	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R6385	1-216-295-91	SHORT	0		
R6386	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R6391	1-216-049-11	RES-CHIP	1K	5%	1/10W
R6394	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R6413	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R6416	1-208-808-11	METAL CHIP	12K	0.5%	1/10W
R6418	1-216-113-00	RES-CHIP	470K	5%	1/10W
R6419	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6420	1-216-111-00	RES-CHIP	390K	5%	1/10W
R6433	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6438	1-215-437-00	METAL	4.7K	1%	1/4W

REF NO.	PART NO.	DESCRIPTION		REMARK	
R6442	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R6456	1-216-097-11	RES-CHIP	100K	5%	1/10W
R6457	1-208-818-11	METAL CHIP	33K	0.5%	1/10W
R6458	1-216-089-91	RES-CHIP	47K	5%	1/10W
R6459	1-216-057-00	RES-CHIP	2.2K	5%	1/10W

<VARIABLE RESISTOR>

RV6100	1-241-785-11	RES, ADJ, CERMET 10K	

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* A-1333-176-A	DH BOARD MOUNTED (KV-ES38M31)	
* A-1333-175-A	DH BOARD MOUNTED (KV-ES38M61)	
* A-1333-172-A	DH BOARD MOUNTED (KV-ES38M90/ES38M91)	

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	4-382-854-11	SCREW (M3X10), P, SW (+)

<CAPACITOR>

REF NO.	PART NO.	DESCRIPTION			
C3801	1-126-964-11	ELECT	10UF	20.00%	50V
C3804	1-102-129-00	CERAMIC	0.01UF	10.00%	50V
C3805	1-126-964-11	ELECT	10UF	20.00%	50V
C3807	1-102-129-00	CERAMIC	0.01UF	10.00%	50V
C3816	1-126-964-11	ELECT	10UF	20.00%	50V
C3819	1-126-960-11	ELECT	1UF	20.00%	50V
C3822	1-136-165-00	FILM	0.1UF	5.00%	50V

<CONNECTOR>

CN3802 *	1-564-509-11	PLUG, CONNECTOR 6P

<DIODE>

D3805	8-719-911-19	1SS119-25

<IC>

IC3805	8-759-822-38	LA6510
IC3807	1-418-597-11	SENSOR UNIT, MAGNETIC

<TRANSISTOR>

Q3806	8-729-119-78	2SC2785-HFE
Q3807	8-729-030-02	DTC144ESA
Q3808	8-729-030-02	DTC144ESA
Q3809	8-729-119-78	2SC2785-HFE
Q3812	8-729-119-78	2SC2785-HFE

<RESISTOR>

REF NO.	PART NO.	DESCRIPTION			
R3802	1-249-417-11	CARBON	1K	5%	1/4W
R3803	1-249-417-11	CARBON	1K	5%	1/4W
R3804	1-215-428-00	METAL	2K	1%	1/4W
R3805	1-215-428-00	METAL (KV-ES38M31)	2K	1%	1/4W
R3805	1-215-425-00	METAL (KV-ES38M61)	1.5K	1%	1/4W

DH E

REF NO.	PART NO.	DESCRIPTION		REMARK	
R3805	1-215-423-00	METAL	1.2K	1%	1/4W
		(KV-ES38M90/ES38M91)			
R3808	1-247-883-00	CARBON	150K	5%	1/4W
R3809	1-215-461-00	METAL	47K	1%	1/4W
R3810	1-249-425-11	CARBON	4.7K	5%	1/4W
R3814	1-249-411-11	CARBON	330	5%	1/4W
R3823	1-249-395-11	CARBON	15	5%	1/4W
R3825	1-249-417-11	CARBON	1K	5%	1/4W
R3828	1-249-377-11	CARBON	0.47	5%	1/4W
R3839	1-249-429-11	CARBON	10K	5%	1/4W
R3845	1-249-425-11	CARBON	4.7K	5%	1/4W
R3849	1-249-377-11	CARBON	0.47	5%	1/4W
R3852	1-249-441-11	CARBON	100K	5%	1/4W
R3854	1-249-429-11	CARBON	10K	5%	1/4W
R3858	1-215-452-00	METAL	20K	1%	1/4W
		(KV-ES38M31 ONLY)			
R3858	1-215-451-00	METAL	18K	1%	1/4W
		(EXCEPT KV-ES38M31)			
R3859	1-215-421-00	METAL	1K	1%	1/4W
		(KV-ES38M31)			
R3859	1-215-425-00	METAL	1.5K	1%	1/4W
		(KV-ES38M61)			
R3859	1-215-430-00	METAL	2.4K	1%	1/4W
		(KV-ES38M90/ES38M91)			
R3860	1-215-405-00	METAL	220	1%	1/4W
R3861	1-215-461-00	METAL	47K	1%	1/4W
R3862	1-249-429-11	CARBON	10K	5%	1/4W

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* A-1333-173-A E BOARD MOUNTED
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<CAPACITOR>

REF NO.	PART NO.	DESCRIPTION		REMARK	
C4301	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4302	1-164-161-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C4308	1-126-960-11	ELECT	1UF	20.00%	50V
C4309	1-164-489-11	CERAMIC CHIP	0.22UF	10.00%	16V
C4316	1-126-947-11	ELECT	47UF	20.00%	16V
C4317	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4318	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4319	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4320	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4321	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4322	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4324	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4325	1-163-093-00	CERAMIC CHIP	10PF	5.00%	50V
C4326	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4327	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4328	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4329	1-126-963-11	ELECT	4.7UF	20.00%	50V
C4330	1-136-244-11	FILM	0.1UF	5.00%	50V
C4331	1-126-959-11	ELECT	0.47UF	20.00%	50V
C4332	1-136-161-00	FILM	0.047UF	5.00%	50V
C4333	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4334	1-126-947-11	ELECT	47UF	20.00%	16V
C4336	1-126-947-11	ELECT	47UF	20.00%	16V
C4338	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4339	1-163-235-11	CERAMIC CHIP	22PF	5.00%	50V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C4340	1-126-947-11	ELECT	47UF	20.00%	16V
C4341	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C4342	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C4343	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4344	1-163-809-11	CERAMIC CHIP	0.047UF	10.00%	25V
C4345	1-126-947-11	ELECT	47UF	20.00%	16V
C4346	1-164-346-11	CERAMIC CHIP	1UF		16V
C4347	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4348	1-164-346-11	CERAMIC CHIP	1UF		16V
C4349	1-164-346-11	CERAMIC CHIP	1UF		16V
C4350	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4351	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C4352	1-126-947-11	ELECT	47UF	20.00%	16V
C4353	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C4354	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C4355	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4356	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4357	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4358	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4359	1-164-161-11	CERAMIC CHIP	0.0022UF	10.00%	50V
C4360	1-126-963-11	ELECT	4.7UF	20.00%	50V
C4362	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4363	1-126-947-11	ELECT	47UF	20.00%	16V
C4364	1-126-947-11	ELECT	47UF	20.00%	16V
C4366	1-104-760-11	CERAMIC CHIP	0.047UF	10.00%	50V
C4367	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4369	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4370	1-126-947-11	ELECT	47UF	20.00%	16V
C4371	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4378	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C4800	1-136-165-00	FILM	0.1UF	5.00%	50V
C4801	1-136-161-00	FILM	0.047UF	5.00%	50V
C4802	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C4803	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C4804	1-126-947-11	ELECT	47UF	20.00%	16V
C4805	1-126-964-11	ELECT	10UF	20.00%	50V
C4806	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C4807	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C4808	1-136-165-00	FILM	0.1UF	5.00%	50V
C4809	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C4810	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C4811	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C4812	1-126-947-11	ELECT	47UF	20.00%	16V
C4813	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C4814	1-126-947-11	ELECT	47UF	20.00%	16V
C4817	1-126-947-11	ELECT	47UF	20.00%	16V
C4820	1-107-909-11	ELECT	47UF	20.00%	16V
C4823	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C4824	1-163-809-11	CERAMIC CHIP	0.047UF	10.00%	25V
C4825	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4833	1-126-964-11	ELECT	10UF	20.00%	50V
C4834	1-126-933-11	ELECT	100UF	20.00%	16V
C4835	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4836	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4837	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C4838	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C4905	1-126-964-11	ELECT	10UF	20.00%	50V
C4906	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V

E

REF NO.	PART NO.	DESCRIPTION			REMARK
		\<CONNECTOR\>			
CN4101	1-793-497-11	CONNECTOR, BOARD TO BOARD 40P			
CN4500 *	1-564-512-11	PLUG, CONNECTOR 9P			
CN4502 *	1-564-506-11	PLUG, CONNECTOR 3P			
		\<DIODE\>			
D4302	8-719-110-41	RD15ES-B2			
D4303	8-719-109-72	RD3.9ES-B2			
D4304	8-719-977-22	DTZ9.1			
D4305	8-719-977-22	DTZ9.1			
D4311	8-719-914-43	DAN202K			
D4312	8-719-914-43	DAN202K			
D4313	8-719-401-63	MA3062M-TX			
D4314	8-719-914-43	DAN202K			
D4800	8-719-914-43	DAN202K			
D4801	8-719-914-43	DAN202K			
D4802	8-719-109-81	RD4.7ESB2			
D4805	8-719-914-43	DAN202K			
D4808	8-719-914-43	DAN202K			
D4809	8-719-914-43	DAN202K			
D4811	1-249-381-11	CARBON 1	5%	1/4W	
D4812	8-719-911-19	1SS119-25			
D4813	8-719-914-43	DAN202K			
D4814	8-719-914-43	DAN202K			
D4815	8-719-109-54	RD2.2ES-B2			
D4816	8-719-911-19	1SS119-25			
D4816	8-719-991-33	1SS133T-77			
D4817	8-719-109-89	RD5.6ESB2			
D4818	8-719-914-43	DAN202K			
D4900	8-719-911-19	1SS119-25			
		\<FERRITE BEAD\>			
FB4387	1-216-295-91	SHORT	0		
FB4388	1-216-295-91	SHORT	0		
FB4389	1-216-295-91	SHORT	0		
		\<IC\>			
IC4301	8-752-090-87	CXA2100AQ			
IC4800	8-759-450-95	LM393N			
IC4801	8-759-450-95	LM393N			
IC4802	8-759-638-79	NJM3404AD-W			
IC4803	8-759-135-80	UPC358C			
		\<CHIP CONDUCTOR\>			
JR4301	1-216-295-91	SHORT	0		
		\<COIL\>			
L4301	1-412-029-11	INDUCTOR	10UH		
L4302	1-412-029-11	INDUCTOR	10UH		
L4303	1-412-029-11	INDUCTOR	10UH		
L4304	1-412-029-11	INDUCTOR	10UH		
L4305	1-412-029-11	INDUCTOR	10UH		
L4306	1-412-029-11	INDUCTOR	10UH		
L4308	1-412-031-11	INDUCTOR	47UH		
L4309	1-412-031-11	INDUCTOR	47UH		
L4311	1-412-002-31	INDUCTOR	4.7UH		

REF NO.	PART NO.	DESCRIPTION			REMARK
		\<TRANSISTOR\>			
Q4301	8-729-230-49	2SC2712-YG			
Q4302	8-729-424-02	2SB709A-QRS-TX			
Q4303	8-729-120-28	2SC1623-L5L6			
Q4304	8-729-230-49	2SC2712-YG			
Q4305	8-729-230-49	2SC2712-YG			
Q4307	8-729-424-02	2SB709A-QRS-TX			
Q4308	8-729-424-02	2SB709A-QRS-TX			
Q4310	8-729-424-02	2SB709A-QRS-TX			
Q4315	1-801-806-11	TR DTC144EKA			
Q4316	8-729-230-49	2SC2712-YG			
Q4317	8-729-900-53	DTC114EK			
Q4319	8-729-424-02	2SB709A-QRS-TX			
Q4320	8-729-424-02	2SB709A-QRS-TX			
Q4321	8-729-424-02	2SB709A-QRS-TX			
Q4322	8-729-424-02	2SB709A-QRS-TX			
Q4800	8-729-230-49	2SC2712-YG			
Q4801	8-729-230-49	2SC2712-YG			
Q4802	8-729-230-49	2SC2712-YG			
Q4803	8-729-230-49	2SC2712-YG			
Q4804	8-729-230-49	2SC2712-YG			
Q4805	8-729-230-49	2SC2712-YG			
Q4806	8-729-230-49	2SC2712-YG			
Q4807	8-729-230-49	2SC2712-YG			
Q4808	8-729-424-02	2SB709A-QRS-TX			
Q4809	8-729-424-02	2SB709A-QRS-TX			
Q4810	8-729-230-49	2SC2712-YG			
Q4811	8-729-230-49	2SC2712-YG			
Q4812	8-729-424-02	2SB709A-QRS-TX			
Q4813	8-729-424-02	2SB709A-QRS-TX			
Q4814	8-729-424-02	2SB709A-QRS-TX			
Q4815	8-729-424-02	2SB709A-QRS-TX			
Q4816	8-729-424-02	2SB709A-QRS-TX			
Q4817	8-729-230-49	2SC2712-YG			
Q4818	8-729-424-02	2SB709A-QRS-TX			
Q4820	8-729-230-49	2SC2712-YG			
Q4821	1-801-806-11	TR DTC144EKA			
Q4822	8-729-230-49	2SC2712-YG			
Q4823	8-729-424-02	2SB709A-QRS-TX			
Q4824	8-729-424-02	2SB709A-QRS-TX			
Q4825	8-729-230-49	2SC2712-YG			
Q4826	8-729-230-49	2SC2712-YG			
Q4906	8-729-422-33	2SD601A-Q-TX			
Q4907	8-729-424-02	2SB709A-QRS-TX			
Q4908	8-729-424-02	2SB709A-QRS-TX			
Q4909	8-729-422-33	2SD601A-Q-TX			
Q4910	8-729-424-02	2SB709A-QRS-TX			
		\<RESISTOR\>			
R4301	1-216-025-11	RES-CHIP	100	5%	1/10W
R4302	1-216-025-11	RES-CHIP	100	5%	1/10W
R4303	1-216-025-11	RES-CHIP	100	5%	1/10W
R4304	1-216-025-11	RES-CHIP	100	5%	1/10W
R4305	1-216-025-11	RES-CHIP	100	5%	1/10W
R4306	1-216-025-11	RES-CHIP	100	5%	1/10W
R4307	1-216-025-11	RES-CHIP	100	5%	1/10W
R4308	1-216-295-91	SHORT	0		
R4310	1-216-295-91	SHORT	0		
R4312	1-216-295-91	SHORT	0		

E

REF NO.	PART NO.	DESCRIPTION		REMARK		REF NO.	PART NO.	DESCRIPTION		REMARK	
R4313	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R4383	1-216-079-00	RES-CHIP	18K	5%	1/10W
R4314	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	R4384	1-216-025-11	RES-CHIP	100	5%	1/10W
R4316	1-216-069-00	RES-CHIP	6.8K	5%	1/10W	R4387	1-216-295-91	SHORT	0		
R4317	1-216-081-00	RES-CHIP	22K	5%	1/10W						
R4318	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W	R4388	1-216-295-91	SHORT	0		
						R4389	1-216-295-91	SHORT	0		
R4319	1-208-804-11	METAL CHIP	8.2K	0.5%	1/10W	R4395	1-216-295-91	SHORT	0		
R4320	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W	R4396	1-216-295-91	SHORT	0		
R4321	1-216-298-00	RES-CHIP	2.2	5%	1/10W	R4397	1-216-295-91	SHORT	0		
R4322	1-216-097-11	RES-CHIP	100K	5%	1/10W						
R4323	1-208-814-91	METAL CHIP	22K	0.5%	1/10W	R4399	1-216-025-11	RES-CHIP	100	5%	1/10W
						R4401	1-216-105-91	RES-CHIP	220K	5%	1/10W
R4324	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W	R4408	1-216-025-11	RES-CHIP	100	5%	1/10W
R4325	1-208-818-11	METAL CHIP	33K	0.5%	1/10W	R4409	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4326	1-208-826-11	METAL CHIP	68K	0.5%	1/10W	R4410	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4327	1-208-822-11	METAL CHIP	47K	0.5%	1/10W						
R4329	1-208-782-11	METAL CHIP	1K	0.5%	1/10W	R4411	1-216-073-91	RES-CHIP	10K	5%	1/10W
						R4412	1-216-097-11	RES-CHIP	100K	5%	1/10W
R4330	1-216-089-91	RES-CHIP	47K	5%	1/10W	R4518	1-216-025-11	RES-CHIP	100	5%	1/10W
R4331	1-216-025-11	RES-CHIP	100	5%	1/10W	R4519	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4332	1-216-025-11	RES-CHIP	100	5%	1/10W	R4520	1-216-025-11	RES-CHIP	100	5%	1/10W
R4333	1-216-025-11	RES-CHIP	100	5%	1/10W						
R4334	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4521	1-216-025-11	RES-CHIP	100	5%	1/10W
						R4800	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4335	1-216-025-11	RES-CHIP	100	5%	1/10W	R4801	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4336	1-216-025-11	RES-CHIP	100	5%	1/10W	R4802	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4337	1-216-025-11	RES-CHIP	100	5%	1/10W	R4803	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4338	1-216-041-00	RES-CHIP	470	5%	1/10W						
R4339	1-216-051-00	RES-CHIP	1.2K	5%	1/10W	R4804	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
						R4805	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4341	1-216-295-91	SHORT	0			R4806	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4343	1-216-025-11	RES-CHIP	100	5%	1/10W	R4807	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4344	1-216-025-11	RES-CHIP	100	5%	1/10W	R4809	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4345	1-216-075-00	RES-CHIP	12K	5%	1/10W						
R4346	1-208-812-11	METAL CHIP	18K	0.5%	1/10W	R4810	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
						R4811	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4347	1-216-025-11	RES-CHIP	100	5%	1/10W	R4812	1-216-295-91	SHORT	0		
R4348	1-216-025-11	RES-CHIP	100	5%	1/10W	R4813	1-216-089-91	RES-CHIP	47K	5%	1/10W
R4349	1-216-041-00	RES-CHIP	470	5%	1/10W	R4814	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R4350	1-216-025-11	RES-CHIP	100	5%	1/10W						
R4351	1-216-081-00	RES-CHIP	22K	5%	1/10W	R4815	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
						R4816	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4352	1-216-041-00	RES-CHIP	470	5%	1/10W	R4817	* 1-208-852-11	METAL CHIP	820K	0.5%	1/10W
R4353	1-216-051-00	RES-CHIP	1.2K	5%	1/10W	R4818	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4354	1-208-806-11	METAL CHIP	10K	0.5%	1/10W	R4819	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4355	1-216-049-11	RES-CHIP	1K	5%	1/10W						
R4356	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4820	1-216-073-91	RES-CHIP	10K	5%	1/10W
						R4821	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4357	1-216-073-91	RES-CHIP	10K	5%	1/10W	R4822	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4358	1-216-071-00	RES-CHIP	8.2K	5%	1/10W	R4823	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4359	1-216-041-00	RES-CHIP	470	5%	1/10W	R4824	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4360	1-216-057-00	RES-CHIP	2.2K	5%	1/10W						
R4361	1-216-133-91	RES-CHIP	3.3M	5%	1/10W	R4825	1-216-073-91	RES-CHIP	10K	5%	1/10W
						R4826	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4362	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4827	1-216-295-91	SHORT	0		
R4363	1-216-025-11	RES-CHIP	100	5%	1/10W	R4828	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R4365	1-216-025-11	RES-CHIP	100	5%	1/10W	R4829	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R4366	1-216-025-11	RES-CHIP	100	5%	1/10W						
R4367	1-216-025-11	RES-CHIP	100	5%	1/10W	R4831	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
						R4832	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R4368	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4833	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R4369	1-216-025-11	RES-CHIP	100	5%	1/10W	R4834	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R4370	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4835	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R4372	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4836	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R4373	1-216-295-91	SHORT	0								
						R4837	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R4374	1-216-025-11	RES-CHIP	100	5%	1/10W	R4838	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R4375	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4839	1-208-802-11	METAL CHIP	6.8K	0.5%	1/10W
R4376	1-216-025-11	RES-CHIP	100	5%	1/10W	R4840	1-216-295-91	SHORT	0		
R4377	1-216-049-11	RES-CHIP	1K	5%	1/10W	R4841	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4380	1-216-073-91	RES-CHIP	10K	5%	1/10W						
						R4842	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R4381	1-208-854-11	METAL CHIP	1M	0.5%	1/10W	R4843	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4382	1-216-073-91	RES-CHIP	10K	5%	1/10W						

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

| E | F₁ | F₂ |

REF NO.	PART NO.	DESCRIPTION			REMARK
R4844	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R4845	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R4846	1-216-295-91	SHORT	0		
R4856	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4857	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4858	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4859	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R4860	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R4861	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4862	1-208-810-11	METAL CHIP	15K	0.5%	1/10W
R4864	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R4865	1-208-770-11	METAL CHIP	330	0.5%	1/10W
R4866	1-216-081-00	RES-CHIP	22K	5%	1/10W
R4869	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4871	1-208-828-11	METAL CHIP	82K	0.5%	1/10W
R4872	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4874	1-216-295-91	SHORT	0		
R4875	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4877	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4878	1-208-838-91	METAL CHIP	220K	0.5%	1/10W
R4879	1-216-105-91	RES-CHIP	220K	5%	1/10W
R4881	1-216-295-91	SHORT	0		
R4882	1-208-836-11	METAL CHIP	180K	0.5%	1/10W
R4883	1-208-842-11	METAL CHIP	330K	0.5%	1/10W
R4884	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R4887	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R4889	1-216-025-11	RES-CHIP	100	5%	1/10W
R4891	1-216-025-11	RES-CHIP	100	5%	1/10W
R4892	1-216-295-91	SHORT	0		
R4894	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4895	1-216-073-91	RES-CHIP	10K	5%	1/10W
R4897	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R4898	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R4899	1-216-025-11	RES-CHIP	100	5%	1/10W
R4908	1-216-049-11	RES-CHIP	1K	5%	1/10W
R4909	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4910	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R4911	1-208-818-11	METAL CHIP	33K	0.5%	1/10W
R4912	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4913	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4914	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4915	1-216-025-11	RES-CHIP	100	5%	1/10W
R4916	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4917	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4918	1-216-089-91	RES-CHIP	47K	5%	1/10W
R4921	1-208-790-11	METAL CHIP	2.2K	0.5%	1/10W
R4922	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R4924	1-208-820-11	METAL CHIP	39K	0.5%	1/10W
R4925	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4926	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R4927	1-208-836-11	METAL CHIP	180K	0.5%	1/10W
R4989	1-216-051-00	RES-CHIP	1.2K	5%	1/10W
R4991	1-216-051-00	RES-CHIP	1.2K	5%	1/10W

<CRYSTAL>

X4300	1-767-127-11	VIBRATOR, CERAMIC			

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REF NO.	PART NO.	DESCRIPTION			REMARK
*	A-1241-509-A	F1 BOARD MOUNTED			
		*******************			
	1-533-223-11	HOLDER, FUSE			
*	4-374-846-01	COVER, CAPACITOR, CAP TYPE			

<CAPACITOR>

C1601 ⚠	1-104-708-51	MYLAR	0.47UF	20.00%	250V
C1602 ⚠	1-109-835-51	MYLAR	0.68UF	20.00%	250V
C1603 ⚠	1-117-703-51	CERAMIC	0.0047UF	99%	250V

<CONNECTOR>

CN1601 ⚠	1-580-843-11	PIN, CONNECTOR (POWER)			
CN1602 ⚠	1-580-843-11	PIN, CONNECTOR (POWER)			
CN1604	1-695-915-11	TAB (CONTACT)			

<FUSE>

F1601	1-532-299-00	FUSE, TIME-LAG 5A/250V			

<FERRITE BEAD>

FB1601	1-410-397-21	FERRITE	1.1UH		
FB1602	1-410-397-21	FERRITE	1.1UH		
FB1603	1-410-397-21	FERRITE	1.1UH		
FB1604	1-410-397-21	FERRITE	1.1UH		

<RESISTOR>

R1601 ⚠	1-202-885-91	SOLID	1M	10%	1/2W

<TRANSFORMER>

T1601	1-433-900-11	TRANSFORMER, LINE FILTER			
T1602	1-433-900-11	TRANSFORMER, LINE FILTER			

<VARISTOR>

VDR161	1-803-830-11	VARISTOR (ERZV14D621)			

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*	A-1241-510-A	F2 BOARD MOUNTED			
		*******************			

<CONNECTOR>

CN1651	1-580-843-11	PIN, CONNECTOR (POWER)			
CN1652 *	1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P			

<SWITCH>

S1651 ⚠	1-571-433-21	SWITCH, PUSH (AC POWER)			

****

H3 H2 H1

REF NO.	PART NO.	DESCRIPTION			REMARK
*	A-1377-035-A	H1 BOARD MOUNTED			
		********************			
*	4-055-304-01	HOLDER, LED			
		<CAPACITOR>			
C1910	1-126-947-11	ELECT	47UF	20.00%	16V
C1911	1-126-947-11	ELECT	47UF	20.00%	16V
C1912	1-102-824-00	CERAMIC	470PF	5.00%	50V
		<CONNECTOR>			
CN1901 *	1-564-520-11	PLUG, CONNECTOR 5P			
		<DIODE>			
D1906	8-719-045-19	SPB-26MVWF			
		<IC>			
IC1901	8-742-134-01	SBX1981-51RP			
		<TRANSISTOR>			
Q1901	8-729-030-02	DTC144ESA			
Q1902	8-729-030-02	DTC144ESA			
		<RESISTOR>			
R1911	1-249-411-11	CARBON	330	5%	1/4W
R1913	1-249-429-11	CARBON	10K	5%	1/4W
R1914	1-249-411-11	CARBON	330	5%	1/4W
R1915	1-249-429-11	CARBON	10K	5%	1/4W
R1916	1-249-401-11	CARBON	47	5%	1/4W
R1917	1-247-807-31	CARBON	100	5%	1/4W
R1920	1-247-807-31	CARBON	100	5%	1/4W
R1921	1-247-807-31	CARBON	100	5%	1/4W

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REF NO.	PART NO.	DESCRIPTION			REMARK
*	A-1377-036-A	H2 BOARD MOUNTED			
		**********************			
		<CAPACITOR>			
C1930	1-136-153-00	FILM	0.01UF	5.00%	50V
C1932	1-136-153-00	FILM	0.01UF	5.00%	50V
C1935	1-102-824-00	CERAMIC	470PF	5.00%	50V
C1938	1-102-824-00	CERAMIC	470PF	5.00%	50V
		<CONNECTOR>			
CN1932 *	1-564-509-11	PLUG, CONNECTOR 6P			
CN1934 *	1-564-515-11	PLUG, CONNECTOR 12P			

REF NO.	PART NO.	DESCRIPTION			REMARK
		<DIODE>			
D1930	8-719-929-15	HZS9.1NB2			
D1930	8-719-923-60	MTZJ-T-77-9.1A			
D1935	8-719-929-15	HZS9.1NB2			
		<JACK>			
J1931	1-770-786-11	JACK			
J1932	1-537-744-11	TERMINAL, S			
J1933	1-770-329-11	JACK, PIN 3P			
		<COIL>			
L1931	1-408-603-31	INDUCTOR	10UH		
L1932	1-408-603-31	INDUCTOR	10UH		
		<RESISTOR>			
R1933	1-247-895-91	CARBON	470K	5%	1/4W
R1934	1-247-807-31	CARBON	100	5%	1/4W
R1935	1-247-807-31	CARBON	100	5%	1/4W
R1936	1-247-895-91	CARBON	470K	5%	1/4W
R1952	1-249-421-11	CARBON	2.2K	5%	1/4W
		<SWITCH>			
S1931	1-692-431-21	SWITCH, TACTILE			

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REF NO.	PART NO.	DESCRIPTION			REMARK
*	A-1377-037-A	H3 BOARD MOUNTED			
		********************			
		<CONNECTOR>			
CN1980 *	1-564-518-11	PLUG, CONNECTOR 3P			
		<RESISTOR>			
R1970	1-249-416-11	CARBON	820	5%	1/4W
R1971	1-249-417-11	CARBON	1K	5%	1/4W
R1972	1-249-418-11	CARBON	1.2K	5%	1/4W
R1973	1-249-420-11	CARBON	1.8K	5%	1/4W
R1974	1-247-843-11	CARBON	3.3K	5%	1/4W
R1975	1-249-427-11	CARBON	6.8K	5%	1/4W
R1976	1-249-432-11	CARBON	18K	5%	1/4W
		<SWITCH>			
S1972	1-572-198-11	SWITCH, KEYBOARD			
S1973	1-572-198-11	SWITCH, KEYBOARD			
S1974	1-572-198-11	SWITCH, KEYBOARD			
S1975	1-572-198-11	SWITCH, KEYBOARD			
S1976	1-572-198-11	SWITCH, KEYBOARD			
S1977	1-572-198-11	SWITCH, KEYBOARD			
S1978	1-572-198-11	SWITCH, KEYBOARD			
S1979	1-572-198-11	SWITCH, KEYBOARD			

J

REF NO.	PART NO.	DESCRIPTION		REMARK	
***					
* A-1395-041-A	J BOARD COMPLETE				
	*******************				
3-350-679-01	WASHER, FIBER				
		<CAPACITOR>			
C8300	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8301	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8302	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8303	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8304	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8305	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8306	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8307	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8308	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8309	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8310	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8311	1-164-346-11	CERAMIC CHIP	1UF		16V
C8312	1-164-346-11	CERAMIC CHIP	1UF		16V
C8313	1-164-346-11	CERAMIC CHIP	1UF		16V
C8314	1-164-346-11	CERAMIC CHIP	1UF		16V
C8315	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8316	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C8317	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8318	1-164-346-11	CERAMIC CHIP	1UF		16V
C8319	1-164-346-11	CERAMIC CHIP	1UF		16V
C8320	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8321	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8322	1-164-346-11	CERAMIC CHIP	1UF		16V
C8323	1-164-346-11	CERAMIC CHIP	1UF		16V
C8324	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8325	1-126-935-11	ELECT	470UF	20.00%	16V
C8326	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8327	1-164-346-11	CERAMIC CHIP	1UF		16V
C8328	1-164-346-11	CERAMIC CHIP	1UF		16V
C8329	1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C8330	1-164-346-11	CERAMIC CHIP	1UF		16V
C8331	1-164-346-11	CERAMIC CHIP	1UF		16V
C8332	1-163-249-11	CERAMIC CHIP	82PF	5.00%	50V
C8333	1-115-340-11	CERAMIC CHIP	0.22UF	10.00%	25V
C8334	1-126-947-11	ELECT	47UF	20.00%	16V
C8335	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8336	1-126-947-11	ELECT	47UF	20.00%	16V
C8337	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8338	1-164-346-11	CERAMIC CHIP	1UF		16V
C8339	1-164-346-11	CERAMIC CHIP	1UF		16V
C8340	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8341	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8342	1-126-964-11	ELECT	10UF	20.00%	50V
C8343	1-126-947-11	ELECT	47UF	20.00%	16V
C8344	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8346	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8347	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8348	1-126-968-11	ELECT	100UF	20.00%	16V
C8349	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8352	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8353	1-115-340-11	CERAMIC CHIP	0.22UF	10.00%	25V
C8354	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8355	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8356	1-164-346-11	CERAMIC CHIP	1UF		16V
C8357	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8358	1-164-346-11	CERAMIC CHIP	1UF		16V
C8359	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C8360	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8361	1-126-961-11	ELECT	2.2UF	20.00%	50V
C8362	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8363	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8364	1-126-947-11	ELECT	47UF	20.00%	16V
C8365	1-126-947-11	ELECT	47UF	20.00%	16V
C8366	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8367	1-126-947-11	ELECT	47UF	20.00%	16V
C8368	1-126-947-11	ELECT	47UF	20.00%	16V
C8369	1-126-947-11	ELECT	47UF	20.00%	16V
C8370	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8371	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8372	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8373	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C8374	1-164-346-11	CERAMIC CHIP	1UF		16V
C8375	1-126-964-11	ELECT	10UF	20.00%	50V
C8376	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8381	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8382	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8386	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8390	1-126-963-11	ELECT	4.7UF	20.00%	50V
C8391	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8392	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8393	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8396	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8399	1-126-961-11	ELECT	2.2UF	20.00%	50V
C8401	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8402	1-164-346-11	CERAMIC CHIP	1UF		16V
C8403	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C8406	1-126-947-11	ELECT	47UF	20.00%	16V
C8407	1-126-947-11	ELECT	47UF	20.00%	16V
C8408	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8410	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8411	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8412	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8413	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8414	1-126-947-11	ELECT	47UF	20.00%	16V
C8415	1-164-346-11	CERAMIC CHIP	1UF		16V
C8416	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8417	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C8418	1-126-964-11	ELECT	10UF	20.00%	50V
C8419	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8424	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8425	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C8430	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8437	1-126-963-11	ELECT	4.7UF	20.00%	50V
C8438	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8439	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8440	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8441	1-164-346-11	CERAMIC CHIP	1UF		16V
C8442	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8443	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8444	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C8445	1-164-346-11	CERAMIC CHIP	1UF		16V
C8446	1-126-947-11	ELECT	47UF	20.00%	16V
C8447	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V

J

REF NO.	PART NO.	DESCRIPTION		REMARK	
C8448	1-164-690-91	CERAMIC CHIP	0.0022UF	5.00%	50V
C8450	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C8451	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C8452	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8453	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8454	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8455	1-126-947-11	ELECT	47UF	20.00%	16V
C8456	1-126-947-11	ELECT	47UF	20.00%	16V
C8457	1-126-947-11	ELECT	47UF	20.00%	16V
C8459	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8464	1-126-947-11	ELECT	47UF	20.00%	16V
C8465	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8466	1-247-807-31	CARBON	100	5%	1/4W
C8468	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8469	1-247-807-31	CARBON	100	5%	1/4W
C8471	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C8474	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
		<CONNECTOR>			
CN8301 *	1-564-524-11	PLUG, CONNECTOR 9P			
CN8302	1-695-915-11	TAB (CONTACT)			
CN8304	1-793-498-11	CONNECTOR, BOARD TO BOARD 50P			
		<DIODE>			
D8101	8-719-404-50	MA111-TX			
D8102	1-216-295-91	SHORT	0		
D8301	8-719-158-35	RD9.1S-B			
D8302	8-719-158-35	RD9.1S-B			
D8303	8-719-158-35	RD9.1S-B			
D8304	8-719-158-35	RD9.1S-B			
D8305	8-719-158-35	RD9.1S-B			
D8306	8-719-158-35	RD9.1S-B			
D8307	8-719-158-35	RD9.1S-B			
D8308	8-719-158-35	RD9.1S-B			
D8309	8-719-158-35	RD9.1S-B			
D8310	8-719-158-35	RD9.1S-B			
D8311	8-719-158-35	RD9.1S-B			
D8312	8-719-158-35	RD9.1S-B			
D8313	8-719-158-35	RD9.1S-B			
D8314	8-719-158-35	RD9.1S-B			
D8315	8-719-067-40	STZ6.8N-T146			
D8316	8-719-067-40	STZ6.8N-T146			
D8317	8-719-067-40	STZ6.8N-T146			
D8318	8-719-158-35	RD9.1S-B			
D8319	8-719-158-35	RD9.1S-B			
D8320	8-719-158-35	RD9.1S-B			
D8321	8-719-158-35	RD9.1S-B			
D8322	8-719-158-35	RD9.1S-B			
D8323	8-719-158-35	RD9.1S-B			
D8324	8-719-158-35	RD9.1S-B			
D8325	8-719-158-35	RD9.1S-B			
D8331	8-719-041-97	MA113-(TX)			
		<FERRITE BEAD>			
FB8101	1-414-598-11	FERRITE	0UH		

REF NO.	PART NO.	DESCRIPTION	REMARK
		<FILTER>	
FL8301	1-236-071-11	ENCAPSULATED COMPONENT	
FL8303	1-236-071-11	ENCAPSULATED COMPONENT	
FL8304	1-236-071-11	ENCAPSULATED COMPONENT	
FL8305	1-236-071-11	ENCAPSULATED COMPONENT	
FL8307	1-236-071-11	ENCAPSULATED COMPONENT	
FL8308	1-236-071-11	ENCAPSULATED COMPONENT	
FL8309	1-236-071-11	ENCAPSULATED COMPONENT	
FL8311	1-236-071-11	ENCAPSULATED COMPONENT	
FL8312	1-236-071-11	ENCAPSULATED COMPONENT	
FL8313	1-236-071-11	ENCAPSULATED COMPONENT	
FL8314	1-233-877-11	FILTER, LOW PASS	
FL8315	1-233-504-21	FILTER, LOW PASS	
FL8316	1-233-504-21	FILTER, LOW PASS	
		<IC>	
IC8302	8-752-080-04	CXA2069Q	
IC8304	8-759-576-72	LF50CDT-TR	
IC8305	8-759-576-74	LF90CDT-TR	
IC8306	8-752-094-47	CXA2123AQ-T6	
IC8308	8-752-094-47	CXA2123AQ-T6	
IC8309	8-759-337-26	MM1115XFBE	
IC8310	8-759-572-04	TDA9178T/N1.118	
IC8311	8-759-485-79	TC7SET08FU(TE85L	
IC8312	8-759-485-79	TC7SET08FU(TE85L	
IC8314	8-742-175-00	HYB IC SBX3005-11	
		<JACK>	
J8106	1-793-787-11	JACK BLOCK, PIN 1P	
J8301	1-774-748-11	TERMINAL BLOCK, S	
J8302	1-774-746-11	JACK BLOCK, PIN	
J8303	1-774-746-11	JACK BLOCK, PIN	
J8304	1-774-746-11	JACK BLOCK, PIN	
J8305	1-695-444-11	PIN JACK BLOCK 3P	
J8307	1-565-838-11	JACK BLOCK, PIN 2P	
		<CHIP CONDUCTOR>	
JR8301	1-216-295-91	SHORT	0
JR8302	1-216-295-91	SHORT	0
JR8303	1-216-295-91	SHORT	0
JR8304	1-216-295-91	SHORT	0
		<TRANSISTOR>	
Q8301	8-729-026-49	2SA1037AK-T146-R	
Q8302	8-729-230-49	2SC2712-YG	
Q8303	8-729-230-49	2SC2712-YG	
Q8304	8-729-230-49	2SC2712-YG	
Q8305	8-729-026-49	2SA1037AK-T146-R	
Q8306	8-729-230-49	2SC2712-YG	
Q8307	8-729-230-49	2SC2712-YG	
Q8308	8-729-230-49	2SC2712-YG	
Q8309	8-729-230-49	2SC2712-YG	
Q8310	8-729-230-49	2SC2712-YG	
Q8312	8-729-230-49	2SC2712-YG	
Q8313	8-729-230-49	2SC2712-YG	
Q8319	8-729-026-49	2SA1037AK-T146-R	

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REF NO.	PART NO.	DESCRIPTION		REMARK	
Q8320	8-729-026-49	2SA1037AK-T146-R			
Q8321	8-729-026-49	2SA1037AK-T146-R			
Q8322	8-729-026-49	2SA1037AK-T146-R			
Q8323	8-729-026-49	2SA1037AK-T146-R			
Q8324	8-729-026-49	2SA1037AK-T146-R			
Q8326	8-729-230-49	2SC2712-YG			
Q8327	1-801-806-11	TR DTC144EKA			
Q8328	1-801-806-11	TR DTC144EKA			
Q8329	8-729-230-49	2SC2712-YG			
Q8330	8-729-230-49	2SC2712-YG			
Q8331	8-729-230-49	2SC2712-YG			
Q8332	8-729-230-49	2SC2712-YG			
Q8333	8-729-230-49	2SC2712-YG			
Q8334	8-729-230-49	2SC2712-YG			
Q8335	8-729-230-49	2SC2712-YG			
Q8336	8-729-230-49	2SC2712-YG			
Q8342	8-729-230-49	2SC2712-YG			
Q8343	8-729-026-49	2SA1037AK-T146-R			
Q8345	8-729-230-49	2SC2712-YG			
Q8346	8-729-026-49	2SA1037AK-T146-R			
Q8347	8-729-230-49	2SC2712-YG			
Q8348	8-729-026-49	2SA1037AK-T146-R			
Q8349	8-729-230-49	2SC2712-YG			
Q8350	8-729-026-49	2SA1037AK-T146-R			
Q8351	8-729-230-49	2SC2712-YG			
Q8352	8-729-026-49	2SA1037AK-T146-R			
Q8353	8-729-026-49	2SA1037AK-T146-R			
Q8354	8-729-026-49	2SA1037AK-T146-R			
Q8355	8-729-026-49	2SA1037AK-T146-R			
Q8361	8-729-230-49	2SC2712-YG			
Q8362	8-729-230-49	2SC2712-YG			
Q8363	8-729-230-49	2SC2712-YG			
Q8364	8-729-026-49	2SA1037AK-T146-R			
Q8464	8-729-230-49	2SC2712-YG			
Q8465	8-729-230-49	2SC2712-YG			
Q8466	8-729-230-49	2SC2712-YG			
Q8512	8-729-026-49	2SA1037AK-T146-R			
		<RESISTOR>			
R8101	1-216-033-00	RES-CHIP	220	5%	1/10W
R8208	1-216-295-91	SHORT	0		
R8209	1-216-295-91	SHORT	0		
R8301	1-216-041-00	RES-CHIP	470	5%	1/10W
R8302	1-216-041-00	RES-CHIP	470	5%	1/10W
R8303	1-216-021-00	RES-CHIP	68	5%	1/10W
R8304	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R8305	1-216-113-00	RES-CHIP	470K	5%	1/10W
R8306	1-216-022-00	RES-CHIP	75	5%	1/10W
R8307	1-216-022-00	RES-CHIP	75	5%	1/10W
R8308	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8309	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8310	1-216-022-00	RES-CHIP	75	5%	1/10W
R8311	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8312	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8313	1-216-022-00	RES-CHIP	75	5%	1/10W
R8314	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8315	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8316	1-216-113-00	RES-CHIP	470K	5%	1/10W
R8317	1-216-022-00	RES-CHIP	75	5%	1/10W
R8318	1-216-022-00	RES-CHIP	75	5%	1/10W
R8319	1-216-022-00	RES-CHIP	75	5%	1/10W

REF NO.	PART NO.	DESCRIPTION		REMARK	
R8320	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8321	1-216-105-91	RES-CHIP	220K	5%	1/10W
R8322	1-216-022-00	RES-CHIP	75	5%	1/10W
R8323	1-216-295-91	SHORT	0		
R8324	1-216-295-91	SHORT	0		
R8325	1-216-295-91	SHORT	0		
R8326	1-216-113-00	RES-CHIP	470K	5%	1/10W
R8327	1-216-295-91	SHORT	0		
R8328	1-216-113-00	RES-CHIP	470K	5%	1/10W
R8329	1-216-113-00	RES-CHIP	470K	5%	1/10W
R8330	1-216-022-00	RES-CHIP	75	5%	1/10W
R8331	1-216-295-91	SHORT	0		
R8332	1-216-295-91	SHORT	0		
R8333	1-216-295-91	SHORT	0		
R8334	1-216-295-91	SHORT	0		
R8335	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8336	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8337	1-216-022-00	RES-CHIP	75	5%	1/10W
R8338	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8339	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8340	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8341	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8342	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8343	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8344	1-216-022-00	RES-CHIP	75	5%	1/10W
R8345	1-216-033-00	RES-CHIP	220	5%	1/10W
R8346	1-216-031-00	RES-CHIP	180	5%	1/10W
R8347	1-216-025-11	RES-CHIP	100	5%	1/10W
R8348	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R8349	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8350	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8351	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8352	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R8353	1-216-017-91	RES-CHIP	47	5%	1/10W
R8354	1-216-017-91	RES-CHIP	47	5%	1/10W
R8355	1-216-295-91	SHORT	0		
R8356	1-216-295-91	SHORT	0		
R8357	1-216-017-91	RES-CHIP	47	5%	1/10W
R8358	1-216-017-91	RES-CHIP	47	5%	1/10W
R8361	1-216-017-91	RES-CHIP	47	5%	1/10W
R8362	1-216-017-91	RES-CHIP	47	5%	1/10W
R8363	1-216-642-11	METAL CHIP	430	0.5%	1/10W
R8364	1-216-041-00	RES-CHIP	470	5%	1/10W
R8365	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8366	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8367	1-216-041-00	RES-CHIP	470	5%	1/10W
R8369	1-216-041-00	RES-CHIP	470	5%	1/10W
R8370	1-216-025-11	RES-CHIP	100	5%	1/10W
R8372	1-216-295-91	SHORT	0		
R8373	1-216-295-91	SHORT	0		
R8374	1-216-039-00	RES-CHIP	390	5%	1/10W
R8375	1-216-041-00	RES-CHIP	470	5%	1/10W
R8376	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8377	1-216-025-11	RES-CHIP	100	5%	1/10W
R8378	1-216-033-00	RES-CHIP	220	5%	1/10W
R8379	1-216-033-00	RES-CHIP	220	5%	1/10W
R8380	1-216-025-11	RES-CHIP	100	5%	1/10W
R8381	1-216-025-11	RES-CHIP	100	5%	1/10W
R8382	1-216-033-00	RES-CHIP	220	5%	1/10W
R8383	1-216-033-00	RES-CHIP	220	5%	1/10W
R8384	1-216-025-11	RES-CHIP	100	5%	1/10W

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REF NO.	PART NO.	DESCRIPTION		REMARK		REF NO.	PART NO.	DESCRIPTION		REMARK	
R8385	1-216-025-11	RES-CHIP	100	5%	1/10W	R8456	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8386	1-216-025-11	RES-CHIP	100	5%	1/10W	R8457	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8388	1-216-031-00	RES-CHIP	180	5%	1/10W	R8458	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8389	1-216-033-00	RES-CHIP	220	5%	1/10W	R8459	1-216-025-11	RES-CHIP	100	5%	1/10W
R8390	1-216-642-11	METAL CHIP	430	0.5%	1/10W	R8460	1-216-025-11	RES-CHIP	100	5%	1/10W
R8391	1-216-041-00	RES-CHIP	470	5%	1/10W	R8461	1-216-025-11	RES-CHIP	100	5%	1/10W
R8393	1-216-037-00	RES-CHIP	330	5%	1/10W	R8462	1-216-089-91	RES-CHIP	47K	5%	1/10W
R8394	1-216-041-00	RES-CHIP	470	5%	1/10W	R8463	1-216-097-11	RES-CHIP	100K	5%	1/10W
R8395	1-216-033-00	RES-CHIP	220	5%	1/10W	R8464	1-216-025-11	RES-CHIP	100	5%	1/10W
R8396	1-216-033-00	RES-CHIP	220	5%	1/10W	R8465	1-216-025-11	RES-CHIP	100	5%	1/10W
R8398	1-216-025-11	RES-CHIP	100	5%	1/10W	R8466	1-216-025-11	RES-CHIP	100	5%	1/10W
R8399	1-216-025-11	RES-CHIP	100	5%	1/10W	R8467	1-216-041-00	RES-CHIP	470	5%	1/10W
R8400	1-216-025-11	RES-CHIP	100	5%	1/10W	R8468	1-216-041-00	RES-CHIP	470	5%	1/10W
R8401	1-216-081-00	RES-CHIP	22K	5%	1/10W	R8469	1-216-041-00	RES-CHIP	470	5%	1/10W
R8404	1-216-033-00	RES-CHIP	220	5%	1/10W	R8470	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R8405	1-216-033-00	RES-CHIP	220	5%	1/10W	R8471	1-216-025-11	RES-CHIP	100	5%	1/10W
R8406	1-216-033-00	RES-CHIP	220	5%	1/10W	R8472	1-216-089-91	RES-CHIP	47K	5%	1/10W
R8407	1-216-033-00	RES-CHIP	220	5%	1/10W	R8473	1-216-025-11	RES-CHIP	100	5%	1/10W
R8408	1-216-033-00	RES-CHIP	220	5%	1/10W	R8474	1-216-097-11	RES-CHIP	100K	5%	1/10W
R8409	1-216-295-91	SHORT	0			R8475	1-216-089-91	RES-CHIP	47K	5%	1/10W
R8410	1-216-295-91	SHORT	0			R8478	1-216-089-91	RES-CHIP	47K	5%	1/10W
R8411	1-216-083-00	RES-CHIP	27K	5%	1/10W	R8479	1-216-097-11	RES-CHIP	100K	5%	1/10W
R8412	1-216-073-91	RES-CHIP	10K	5%	1/10W	R8480	1-216-073-91	RES-CHIP	10K	5%	1/10W
R8413	1-216-041-00	RES-CHIP	470	5%	1/10W	R8481	1-216-095-00	RES-CHIP	82K	5%	1/10W
R8414	1-208-796-11	METAL CHIP	3.9K	0.5%	1/10W	R8482	1-216-089-91	RES-CHIP	47K	5%	1/10W
R8415	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8484	1-216-045-00	RES-CHIP	680	5%	1/10W
R8417	1-216-025-11	RES-CHIP	100	5%	1/10W	R8485	1-216-037-00	RES-CHIP	330	5%	1/10W
R8418	1-216-025-11	RES-CHIP	100	5%	1/10W	R8486	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8419	1-216-017-91	RES-CHIP	47	5%	1/10W	R8487	1-216-045-00	RES-CHIP	680	5%	1/10W
R8420	1-216-017-91	RES-CHIP	47	5%	1/10W	R8488	1-216-041-00	RES-CHIP	470	5%	1/10W
R8421	1-216-295-91	SHORT	0			R8489	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8422	1-216-295-91	SHORT	0			R8490	1-216-049-11	RES-CHIP	1K	5%	1/10W
						R8491	1-216-025-11	RES-CHIP	100	5%	1/10W
R8424	1-216-083-00	RES-CHIP	27K	5%	1/10W						
R8425	1-216-089-91	RES-CHIP	47K	5%	1/10W	R8493	1-216-081-00	RES-CHIP	22K	5%	1/10W
R8426	1-208-796-11	METAL CHIP	3.9K	0.5%	1/10W	R8495	1-216-081-00	RES-CHIP	22K	5%	1/10W
R8428	1-216-295-91	SHORT	0			R8496	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8429	1-216-295-91	SHORT	0			R8497	1-216-025-11	RES-CHIP	100	5%	1/10W
						R8499	1-216-081-00	RES-CHIP	22K	5%	1/10W
R8430	1-216-295-91	SHORT	0								
R8431	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8501	1-216-081-00	RES-CHIP	22K	5%	1/10W
R8432	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8502	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8433	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8503	1-216-097-11	RES-CHIP	100K	5%	1/10W
R8434	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8504	1-216-295-91	SHORT	0		
						R8507	1-216-025-11	RES-CHIP	100	5%	1/10W
R8435	1-216-295-91	SHORT	0								
R8436	1-216-017-91	RES-CHIP	47	5%	1/10W	R8508	1-216-025-11	RES-CHIP	100	5%	1/10W
R8440	1-216-295-91	SHORT	0			R8510	1-216-041-00	RES-CHIP	470	5%	1/10W
R8441	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8511	1-216-041-00	RES-CHIP	470	5%	1/10W
R8442	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8512	1-216-017-91	RES-CHIP	47	5%	1/10W
						R8516	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8443	1-216-025-11	RES-CHIP	100	5%	1/10W	R8522	1-216-041-00	RES-CHIP	470	5%	1/10W
R8444	1-216-025-11	RES-CHIP	100	5%	1/10W						
R8445	1-216-017-91	RES-CHIP	47	5%	1/10W	R8524	1-216-041-00	RES-CHIP	470	5%	1/10W
R8446	1-216-049-11	RES-CHIP	1K	5%	1/10W	R8525	1-216-033-00	RES-CHIP	220	5%	1/10W
R8447	1-216-025-11	RES-CHIP	100	5%	1/10W	R8528	1-216-025-11	RES-CHIP	100	5%	1/10W
						R8530	1-216-041-00	RES-CHIP	470	5%	1/10W
R8448	1-216-025-11	RES-CHIP	100	5%	1/10W	R8532	1-216-041-00	RES-CHIP	470	5%	1/10W
R8449	1-216-025-11	RES-CHIP	100	5%	1/10W						
R8450	1-216-089-91	RES-CHIP	47K	5%	1/10W	R8533	1-216-041-00	RES-CHIP	470	5%	1/10W
R8451	1-216-097-11	RES-CHIP	100K	5%	1/10W	R8536	1-216-025-11	RES-CHIP	100	5%	1/10W
R8452	1-216-089-91	RES-CHIP	47K	5%	1/10W	R8538	1-216-041-00	RES-CHIP	470	5%	1/10W
						R8540	1-216-041-00	RES-CHIP	470	5%	1/10W
R8453	1-216-097-11	RES-CHIP	100K	5%	1/10W	R8541	1-216-039-00	RES-CHIP	390	5%	1/10W
R8454	1-216-089-91	RES-CHIP	47K	5%	1/10W						
R8455	1-216-097-11	RES-CHIP	100K	5%	1/10W	R8544	1-216-041-00	RES-CHIP	470	5%	1/10W
						R8547	1-216-295-91	SHORT	0		

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REF NO.	PART NO.	DESCRIPTION			REMARK
R8548	1-216-033-00	RES-CHIP	220	5%	1/10W
R8551	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8556	1-216-025-11	RES-CHIP	100	5%	1/10W
R8557	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8558	1-208-776-11	METAL CHIP	560	0.5%	1/10W
R8560	1-216-025-11	RES-CHIP	100	5%	1/10W
R8561	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8562	1-208-776-11	METAL CHIP	560	0.5%	1/10W
R8564	1-216-025-11	RES-CHIP	100	5%	1/10W
R8565	1-216-049-11	RES-CHIP	1K	5%	1/10W
R8566	1-208-776-11	METAL CHIP	560	0.5%	1/10W
R8567	1-216-017-91	RES-CHIP	47	5%	1/10W
R8569	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R8570	1-216-017-91	RES-CHIP	47	5%	1/10W
R8572	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R8573	1-216-017-91	RES-CHIP	47	5%	1/10W
R8575	1-208-800-11	METAL CHIP	5.6K	0.5%	1/10W
R8576	1-216-013-00	RES-CHIP	33	5%	1/10W
R8577	1-216-295-91	SHORT	0		
R8578	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R8579	1-216-295-91	SHORT	0		
R8582	1-208-291-11	RES-CHIP	4.7M	5%	1/10W
R8583	1-208-291-11	RES-CHIP	4.7M	5%	1/10W
R8584	1-208-291-11	RES-CHIP	4.7M	5%	1/10W
R8585	1-208-291-11	RES-CHIP	4.7M	5%	1/10W
R8586	1-208-291-11	RES-CHIP	4.7M	5%	1/10W
R8587	1-216-295-91	SHORT	0		
R8588	1-216-041-00	RES-CHIP	470	5%	1/10W
R8589	1-216-041-00	RES-CHIP	470	5%	1/10W
R8590	1-216-041-00	RES-CHIP	470	5%	1/10W
R8592	1-216-295-91	SHORT	0		
R8594	1-216-295-91	SHORT	0		
R8595	1-216-041-00	RES-CHIP	470	5%	1/10W
R8596	1-216-041-00	RES-CHIP	470	5%	1/10W
R8597	1-216-041-00	RES-CHIP	470	5%	1/10W

<CRYSTAL>

REF NO.	PART NO.	DESCRIPTION
X8301	1-781-612-11	VIBRATOR, CRYSTAL
X8302	1-781-612-11	VIBRATOR, CRYSTAL

****

* A-1391-163-A   SP BOARD MOUNTED
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<CAPACITOR>

REF NO.	PART NO.	DESCRIPTION			
C3251	1-136-177-00	FILM	1UF	5.00%	50V
C3252	1-126-411-21	ELECT	27UF	20.00%	50V

<CONNECTOR>

REF NO.	PART NO.	DESCRIPTION
CN3251	1-564-506-11	PLUG, CONNECTOR 3P
CN3253	1-564-507-11	PLUG, CONNECTOR 4P

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REF NO.	PART NO.	DESCRIPTION			REMARK
	* A-1342-626-A	V BOARD MOUNTED (KV-ES38M31/ES38M61/ES38M91) *******************			

<CAPACITOR>

REF NO.	PART NO.	DESCRIPTION			
C1803	1-104-665-11	ELECT	100UF	20.00%	16V
C1804	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V
C1805	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1806	1-163-105-00	CERAMIC CHIP	33PF	5.00%	50V
C1807	1-163-105-00	CERAMIC CHIP	33PF	5.00%	50V
C1808	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1809	1-104-665-11	ELECT	100UF	20.00%	16V
C1810	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C1811	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1812	1-104-665-11	ELECT	100UF	20.00%	16V
C1813	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1815	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V
C1819	1-164-005-11	CERAMIC CHIP	0.47UF		25V
C1821	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C1822	1-126-934-11	ELECT	220UF	20.00%	10V
C1824	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1826	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1827	1-126-934-11	ELECT	220UF	20.00%	10V
C1828	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C1829	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V

<CONNECTOR>

REF NO.	PART NO.	DESCRIPTION
CN1801	1-793-496-11	CONNECTOR, BOARD TO BOARD 20P

<DIODE>

REF NO.	PART NO.	DESCRIPTION
D1802	8-719-404-50	MA111-TX
D1803	8-719-404-50	MA111-TX
D1809	8-719-404-50	MA111-TX
D1810	8-719-404-50	MA111-TX

<FERRITE BEAD>

REF NO.	PART NO.	DESCRIPTION	
FB1801	1-410-397-21	FERRITE	1.1UH
FB1802	1-410-397-21	FERRITE	1.1UH
FB1803	1-410-397-21	FERRITE	1.1UH
FB1804	1-410-397-21	FERRITE	1.1UH
FB1805	1-410-397-21	FERRITE	1.1UH

<IC>

REF NO.	PART NO.	DESCRIPTION
IC1801	8-759-652-13	SDA5254-2B006
IC1802	8-759-239-14	TA78L05S
IC1803	8-759-042-02	S-80743AL-A7-S

<COIL>

REF NO.	PART NO.	DESCRIPTION	
L1801	1-408-602-31	INDUCTOR	8.2UH

<TRANSISTOR>

REF NO.	PART NO.	DESCRIPTION
Q1802	8-729-230-50	2SC2712-YG
Q1803	8-729-230-49	2SC2712-YG
Q1804	8-729-026-49	2SA1037AK-T146-R
Q1805	8-729-026-49	2SA1037AK-T146-R
Q1806	8-729-026-49	2SA1037AK-T146-R

VM V

REF NO.	PART NO.	DESCRIPTION			REMARK
		<RESISTOR>			
R1804	1-208-792-11	METAL CHIP	2.7K	0.5%	1/10W
R1805	1-216-025-11	RES-CHIP	100	5%	1/10W
R1806	1-216-025-11	RES-CHIP	100	5%	1/10W
R1807	1-208-816-11	METAL CHIP	27K	0.5%	1/10W
R1808	1-216-025-11	RES-CHIP	100	5%	1/10W
R1809	1-208-758-11	METAL CHIP	100	0.5%	1/10W
R1811	1-208-758-11	METAL CHIP	100	0.5%	1/10W
R1812	1-216-295-91	SHORT	0		
R1813	1-208-758-11	METAL CHIP	100	0.5%	1/10W
R1814	1-216-295-91	SHORT	0		
R1815	1-216-295-91	SHORT	0		
R1816	1-216-295-91	SHORT	0		
R1820	1-216-121-11	RES-CHIP	1M	5%	1/10W
R1821	1-216-041-00	RES-CHIP	470	5%	1/10W
R1822	1-216-025-11	RES-CHIP	100	5%	1/10W
R1823	1-216-089-91	RES-CHIP	47K	5%	1/10W
R1824	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1825	1-216-041-00	RES-CHIP	470	5%	1/10W
R1826	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1827	1-216-037-00	RES-CHIP	330	5%	1/10W
R1829	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R1830	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R1831	1-216-073-91	RES-CHIP	10K	5%	1/10W
R1832	1-215-859-00	METAL OXIDE	22	5%	1W
R1833	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1834	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R1835	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1836	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1837	1-216-049-11	RES-CHIP	1K	5%	1/10W
R1838	1-216-025-11	RES-CHIP	100	5%	1/10W
R1839	1-216-025-11	RES-CHIP	100	5%	1/10W
R1840	1-216-025-11	RES-CHIP	100	5%	1/10W
R1841	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
		<CRYSTAL>			
X1801	1-781-685-21	VIBRATOR, CRYSTAL			

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* A-1342-625-A		VM BOARD MOUNTED			

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	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C5401	1-126-935-11	ELECT	470UF	20.00%	16V
C5402	1-137-194-81	FILM	0.47UF	5.00%	50V
C5403	1-126-935-11	ELECT	470UF	20.00%	6.3V
C5405	1-126-933-11	ELECT	100UF	20.00%	16V
C5406	1-126-935-11	ELECT	470UF	20.00%	6.3V
C5407	1-107-364-11	MYLAR	0.01UF	10.00%	200V
C5408	1-107-364-11	MYLAR	0.01UF	10.00%	200V
C5409	1-107-649-11	ELECT	2.2UF	20.00%	250V
C5410	1-130-471-00	MYLAR	0.001UF	5.00%	50V
C5411	1-130-471-00	MYLAR	0.001UF	5.00%	50V
C5412	1-126-935-11	ELECT	470UF	20.00%	16V
C5413	1-107-648-91	ELECT	100UF	20.00%	160V

REF NO.	PART NO.	DESCRIPTION			REMARK
C5415	1-104-999-11	MYLAR	0.1UF	10.00%	200V
C5418	1-107-638-11	ELECT	33UF	20.00%	160V
		<CONNECTOR>			
CN5401 *	1-770-723-11	CONNECTOR, BOARD TO BOARD 8P			
CN5402	1-764-334-11	PLUG, CONNECTOR 11P			
		<DIODE>			
D5400	8-719-911-19	1SS119-25			
D5401	8-719-510-02	D1NS4			
D5402	8-719-911-19	1SS119-25			
D5403	8-719-911-19	1SS119-25			
D5404	8-719-911-19	1SS119-25			
D5405	8-719-110-56	RD22ES-B1			
D5406	8-719-110-56	RD22ES-B1			
		<COIL>			
L5400	1-412-525-31	INDUCTOR	10UH		
		<TRANSISTOR>			
Q5400	8-729-119-78	2SC2785-HFE			
Q5401	8-729-119-78	2SC2785-HFE			
Q5402	8-729-119-78	2SC2785-HFE			
Q5403	8-729-119-78	2SC2785-HFE			
Q5404	8-729-119-76	2SA1175-HFE			
Q5405	8-729-119-76	2SA1175-HFE			
Q5406	8-729-045-05	2SA2005			
Q5407	8-729-045-04	2SC5511			
		<RESISTOR>			
R5401	1-249-425-11	CARBON	4.7K	5%	1/4W
R5402	1-249-415-11	CARBON	680	5%	1/4W
R5403	1-247-739-11	CARBON	100	5%	1/2W
R5404	1-249-418-11	CARBON	1.2K	5%	1/4W
R5406	1-249-425-11	CARBON	4.7K	5%	1/4W
R5407	1-249-399-11	CARBON	33	5%	1/4W
R5408	1-247-807-31	CARBON	100	5%	1/4W
R5409	1-249-409-11	CARBON	220	5%	1/4W
R5410	1-249-401-11	CARBON	47	5%	1/4W
R5411	1-249-401-11	CARBON	47	5%	1/4W
R5412	1-249-429-11	CARBON	10K	5%	1/4W
R5413	1-249-414-11	CARBON	560	5%	1/4W
R5414	1-249-432-11	CARBON	18K	5%	1/4W
R5415	1-247-739-11	CARBON	100	5%	1/2W
R5416	1-249-385-11	CARBON	2.2	5%	1/4W
R5417	1-249-432-11	CARBON	18K	5%	1/4W
R5418	1-249-414-11	CARBON	560	5%	1/4W
R5419	1-249-421-11	CARBON	2.2K	5%	1/4W
R5420	1-249-421-11	CARBON	2.2K	5%	1/4W
R5421	1-249-385-11	CARBON	2.2	5%	1/4W
R5422	1-249-405-11	CARBON	100	5%	1/4W
R5423	1-215-915-11	METAL OXIDE	470	5%	3W
R5424	1-249-395-11	CARBON	15	5%	1/4W
R5425	1-249-401-11	CARBON	47	5%	1/4W
R5427	1-249-395-11	CARBON	15	5%	1/4W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF NO.	PART NO.	DESCRIPTION	REMARK		REF NO.	PART NO.	DESCRIPTION	REMARK

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ACCESSORIES AND PACKING MATERIALS
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	1-769-175-21	CABLE, ANTENNA (WITH FILTER)	
	1-569-008-21	ADAPTOR, CONVERSION 2P (KV-ES38M91 only)	
	3-701-910-00	SCREW, SPECIAL (DIA. 3.8X20)	
*	4-081-299-01	BAG, PROTECTION	
	4-084-490-01	INDIVIDUAL CARTON	
*	4-084-491-01	TRAY	
*	4-084-494-01	CUSHION (UPPER) (EXCEPT KV-ES38M61)	
*	4-084-495-01	CUSHION (LOWER) (EXCEPT KV-ES38M61)	
*	4-396-077-01	JOINT	
	4-079-895-51	MANUAL, INSTRUCTION (KV-ES38M31/M91)	
	4-079-895-41	MANUAL, INSTRUCTION (KV-ES38M61)	
	4-079-895-21	MANUAL, INSTRUCTION (KV-ES38M90)	
	4-079-895-31	MANUAL, INSTRUCTION (KV-ES38M91)	
	4-392-003-01	BAND, HOLD	
	4-392-004-11	CLIP	
*	4-055-673-01	SHEET, PROTECTION	

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REMOTE COMMANDER
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| | 1-418-566-11 | REMOTE COMMANDER (RM-916) | |
| | 4-074-721-01 | BATTERY COVER REMOTE COMMANDER | |